

# THE MILLING WORLD

AND

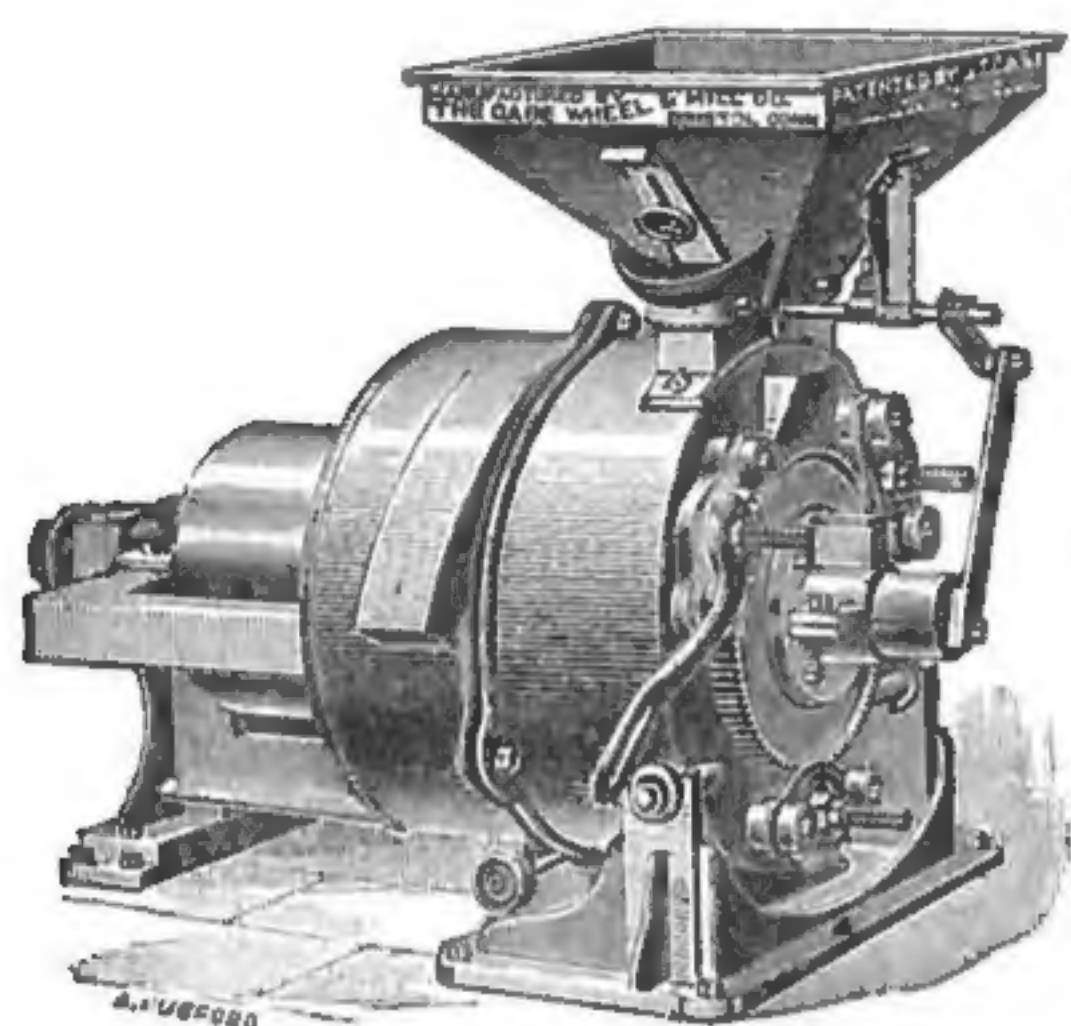
CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XXII. No. 2.

BUFFALO, N. Y., MARCH 10, 1890.

\$1.50 PER YEAR.



## VICTORY OVER ALL OTHERS. SINGLE & DOUBLE VERTICAL GRINDING MILLS.

(J. T. CASE'S PATENT.)

### FACTS ARE MIGHTIER THAN ASSERTIONS. READ WHAT THEY SAY:

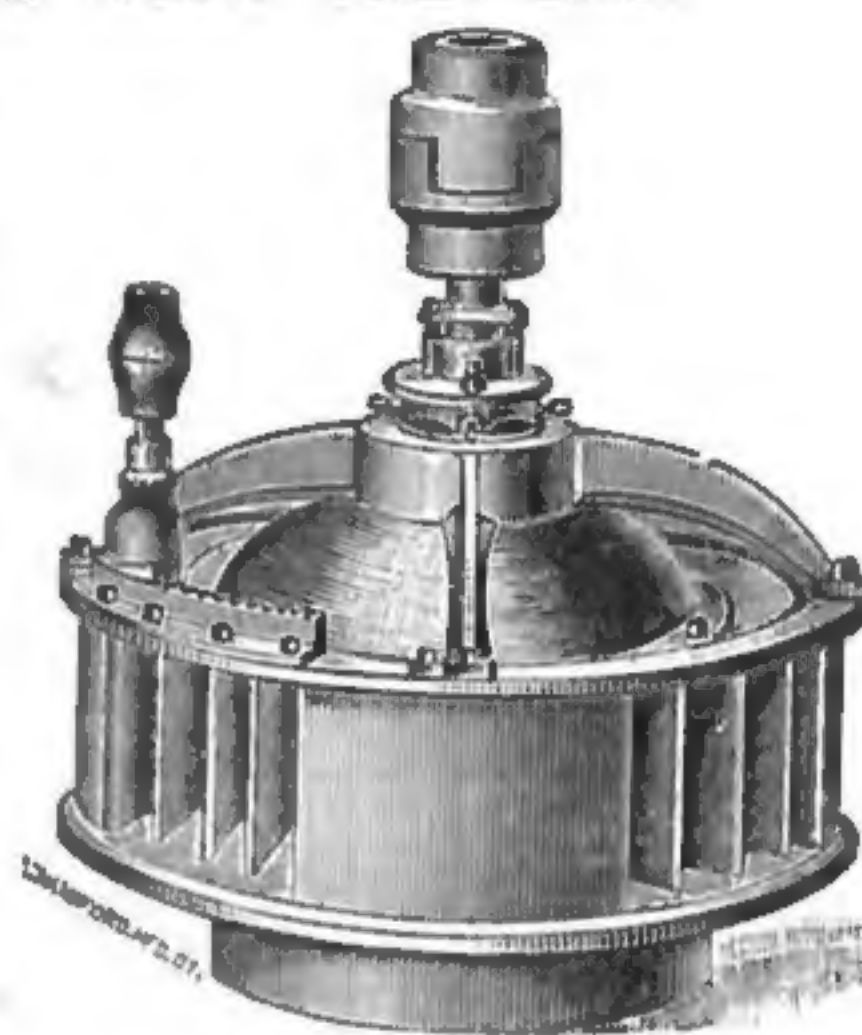
"Our 20-inch mill made by the Case Wheel & Mill Co. is in every respect satisfactory, easy to handle, and best results obtained of any mill in the country, with same quantity coal and power."—A. S. RUSSELL & Co., Meriden, Conn.  
 "Superior to any mill in use."—Geo. WESTON, Bristol, Conn.  
 "The best satisfaction in quantity and quality."—CHILD'S ELEVATOR, Manchester, Ct.  
 "We take pleasure in recommending it."—GARLAND, LINCOLN & Co., Worcester, Mass.

SEND FOR CATALOGUE—ILLUSTRATED AND DESCRIPTIVE.

## The Improved National Turbine Water Wheel

The Best for Economy; The Best for Durability; The Best for Power. ONE THOUSAND FIVE HUNDRED NATIONAL WATER WHEELS IN USE Prove that our Assertions are Supported by the Leading Manufacturers in the Country. Send for illustrated catalogue and prices to the manufacturers.

**The Case Wheel & Mill Co., Bristol, Conn.**



NEW SHARON, IOWA, Feb. 10, 1890.

THE J. B. ALLFREE COMPANY, INDIANAPOLIS, IND.

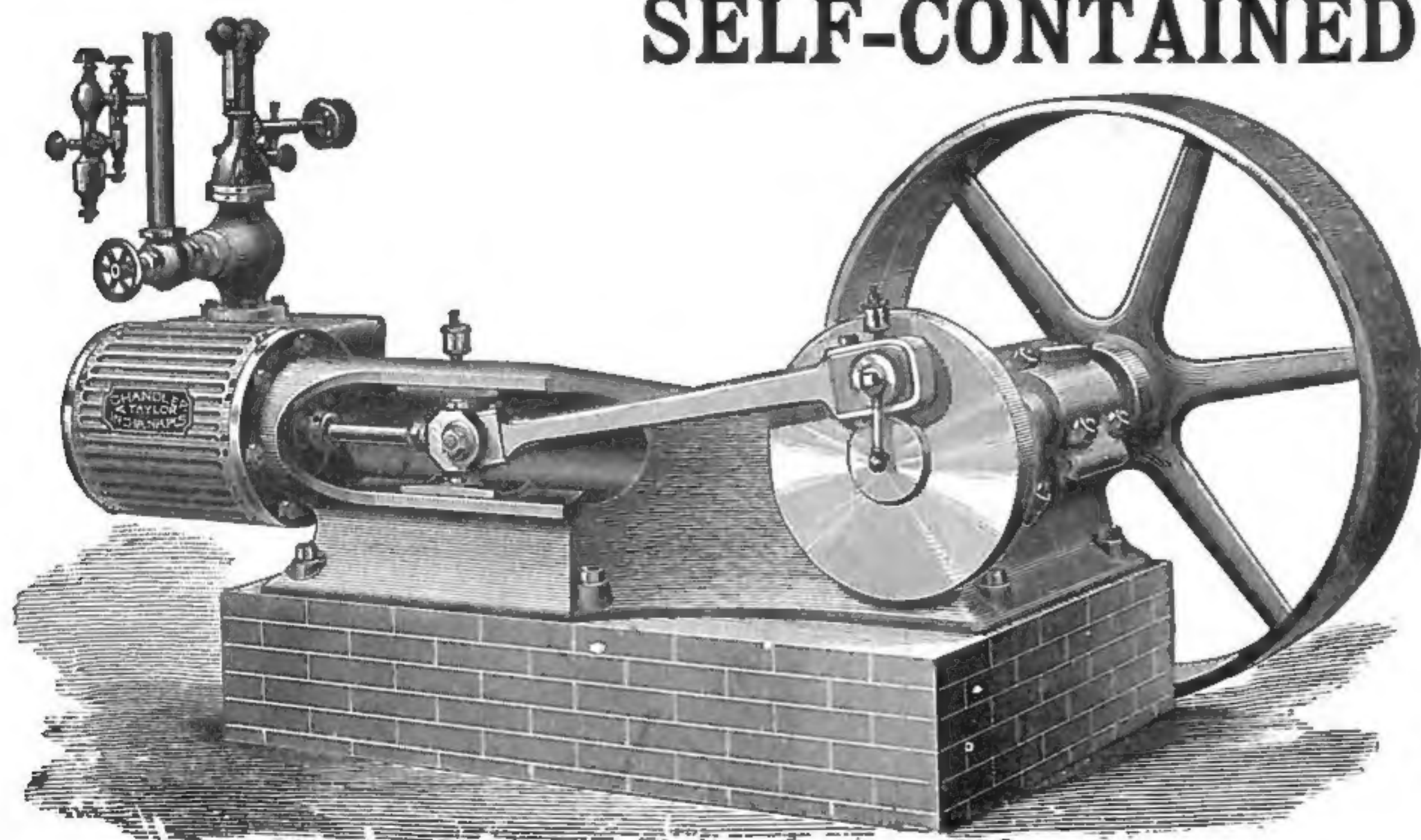
GENTLEMEN: We have had your mill in operation since November, 1889. It is an 80-barrel mill and put up in splendid style and finish. The *workmanship is perfect*, and in every respect, and all *our machinery runs with the greatest of ease*. Our engine is an "Allfree Automatic," and *it is a "daisy."* It *plays* all day long and takes *but little fuel*. *We would sooner have it than a Corliss*, and think it is *quite as economical*. Our entire mill outfit is first-class, and is made by *The J. B. Allfree Company, of Indianapolis, Ind.* The *shaker scalper* is a *success*, and *does better work than a reel scalper*, and runs easily with a 3-inch belt.

We wish all intending to build mills could pay us a visit, so that we could show them all the good points of our mill—for to see is to be convinced of its superiority. Our mill does good work, and we can say that we have had *no choke-up* and *no belt to change since we started*. We can *fully recommend the J. B. Allfree machinery* in every respect to millers wishing to build or remodel their mills.

Yours truly,

NEW SHARON MILL CO.,

R. D. HIGH, Manager.



## SELF-CONTAINED STEAM ENGINES Stationary or Semi-Portable.

High Standard Maintained.  
Prices Greatly Reduced.

WRITE FOR NEW ILLUSTRATED  
CATALOGUE NO. 32.

**Chandler & Taylor Co.**  
**Indianapolis, Ind.**

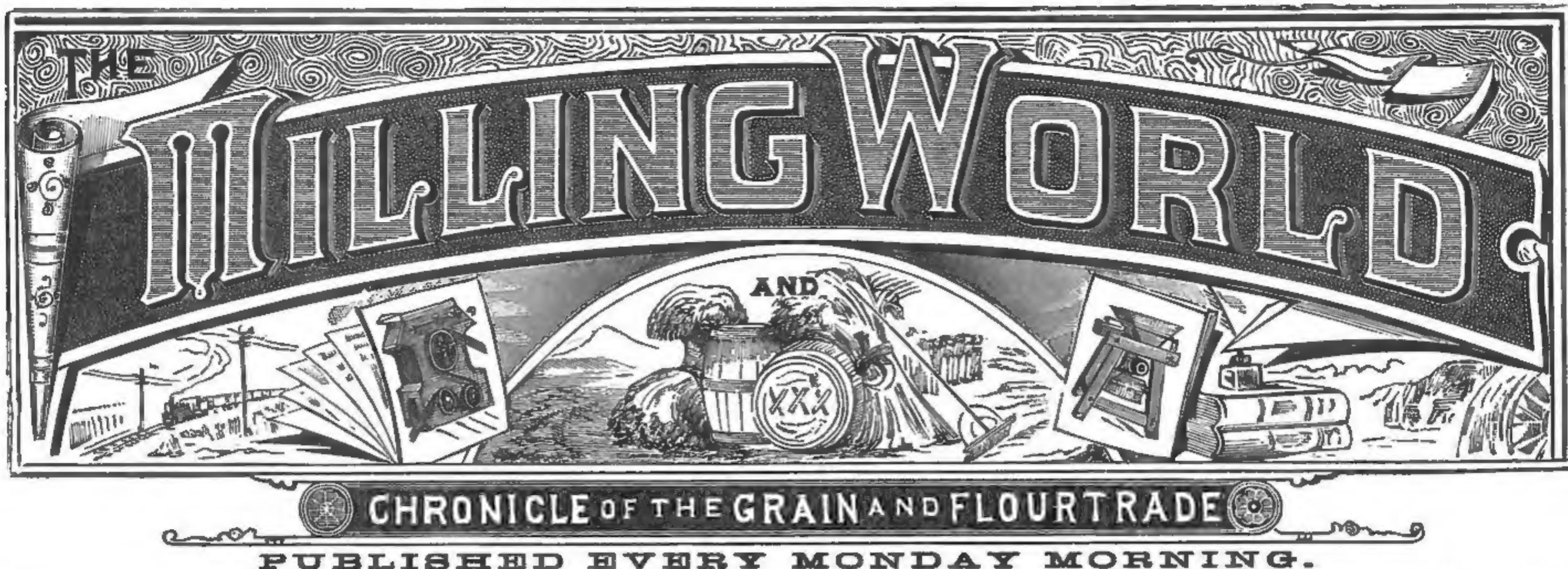
Engines, Saw-Mills and Drain Tile  
Machinery a Specialty.

# CASE.

CASE MFG. CO., COLUMBUS, O.  
GENTLEMEN: If we were to build a hundred mills we  
would not permit any other than the "CASE" roll to  
enter them. They are the best roll on earth.  
Yours truly,  
W. C. MANSFIELD & CO.

W. C. MANSFIELD & CO.,  
MERCHANT MILLERS,  
CLEVELAND, TENN., AUG. 29, 1889.

# CASE.



Vol. XXII. No. 2.

BUFFALO, N. Y., MARCH 10, 1890.

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THE Consolidated Roller Mill Company do not seem to be so uncommonly anxious and willing to have the milling journals publish the Blodgett decision, or the Gresham decision, as they were to secure the publication of the Brown decision, which happened to favor them. Wonder what's the reason?

WHAT a variety it would be to see some journal, or some mill-furnisher, or some interested individual come to the front and tear up the "shortsystem"! It seems an age since eloquent writers were pronouncing the short system the high road to bankruptcy, and yet the system exists, and operates, and gives satisfactory results, and one of its most conspicuous exponents, Mr. J. Murray Case, is even propagandizing in Great Britain. What, O! what has become of the anti-short-system-long-system cranks?

EVIDENTLY the consumption of wheat per capita in the United States must be greatly exaggerated, or else the crop is hardly ever correctly estimated. It is highly probable that the actual average consumption of wheat per capita is decreasing in this country, and the reason lies in the variety of foods obtainable by Americans. Cheap and abundant supplies of fresh meat, an infinite variety of fine vegetables, a steady supply of fresh and canned fruits of all kinds, and the steadily increasing use of other cereal products, corn-meal in various shapes, rice, oatmeal, rye, barley and buckwheat, all tend to make the Americans more independent of wheat bread than people in other countries can possibly be. Beyond reasonable doubt the increase in population in the United States is out of all proportion to the increase in the consumption of wheat and wheat products. This is a fact that is important to both the miller and the grain-grower.

CORRESPONDENTS are inquiring whether or no the decision of Judge Blodgett in the case of the Consolidated Roller Mill Company "finally settles all patent roller-mill litigation by that company." We are not in a position to know anything about the plans or intentions of the Consolidated, and therefore our correspondents must apply elsewhere for information. The Blodgett decision is, of course, not final, in case the Consolidated people go into the Supreme Court. That decision has damaged their teeth badly, and they may not conclude to fight any longer. The foreign patents on the Gray, Odell and Birkholz "inventions" appear to put a new face on the roller-mill litigation, and Judge Blodgett's decision will doubtless stand. There seems to be no good reason to expect a reversal of that decision. It is based on facts that can not be denied, it is the opinion of a profound jurist, and it coincides with the decision of another profound jurist, Judge Gresham. The Consolidated dream of millions in royalty, of injunctions for infringement, and of future monopoly in the mill-furnishing business in the United States will never be realized. The millers may rest easy.

WHAT of the wheat outlook? The Southern Hemisphere has turned out only an average crop. India has lost by drouth a large portion of her sowing and is sure of a famine in some sections and an average, or less, in others. Northern

Africa is scourged by a ruinous drouth, that has already destroyed the wheat crop. The winter-wheat crop of the United States is in a precariously premature state of advancement and, with probable frost loss and certain insect pest damages, may fall far below an average. Winter wheat prospects throughout Europe are barely average. Were the conditions in the Southern Hemisphere and the winter wheat prospect in the Northern Hemisphere the only elements to be considered, the wheat problem for 1890 would present some serious features. The spring-wheat element will, naturally, be somewhat influenced at the start by the condition of winter wheat, and, should the summer prove as fickle and unseasonable as the winter has been, the world's supply of wheat for 1890-'91 may be considerably below the normal demand of the world. It will not be at all surprising to see wheat 50 per cent. dearer next December than it is now.

AUSTRALIAN wheat crop reports have passed their climax of exaggeration, and already they begin to show a decided falling off. Every report that arrives is a little less favorable than the preceding one, and it now seems that the Australian crop is a streaked one, good in some sections, bad in others, hopeless in others, while the quality is quite as variable and unsatisfactory as the quantity. Yet this over-boomed crop in Australia has been made to serve the purpose of the British bear buyers of American wheat. Gross exaggeration for the past four months has led American holders of wheat and flour to expect great competition in Australasia, and that expectation has weakened their confidence in the value of their holdings. They have been hornswoggled into letting wheat and flour go at the lowest prices on record, and now, when it is too late for the knowledge to do them any good, they once more learn that they have been systematically and scientifically "beared" by the British importers who manage the news matters of the Southern Hemisphere on crops. The same tactics are visible in the reports from Chili and the Argentine Republic. The crops reported solely through British agencies in no case come up to the British estimates and representations, and yet the American dealers go on, year after year, placing confidence in reports that have been in every single instance grossly exaggerated! The depreciation in American wheat prices, on the present crop, through these interested reports, is not far from 15 cents a bushel, meaning a total depreciation of at least \$73,000,000 on the 490,000,000-bushel crop of wheat of 1889. Possibly our purblind grain producers and handlers may, in the course of time, come to the conclusion that the American grain trade is in its present unsatisfactory condition simply because Americans have made no effort to post themselves on the actual crop conditions in competing countries, and because they have relied on the reports of men whose every interest inclines them to report falsely. A paltry sum expended each year on the collection of wheat statistics would materially alter market conditions in this country, and the sooner the grain men of the United States accept that truth and act upon it, the better it will be for all concerned.

# Dawson's Roller Mill

Is acknowledged to be the very best in the market. It has our Patent Automatic Centrifugal feeder, never failing to feed the stock the full length of rolls in an even sheet. It is the Latest and Best feed out, uses less power and is simple in construction. It can be placed on any style of machine with little expense. We use for roll bearings phosphor-bronze metal which will admit rolls being run at any speed without heating and with little friction, and uses little oil. We use the Dawson Corrugation, which is admitted the best in long or short system mills as the action is granulating rather than CUTTING.

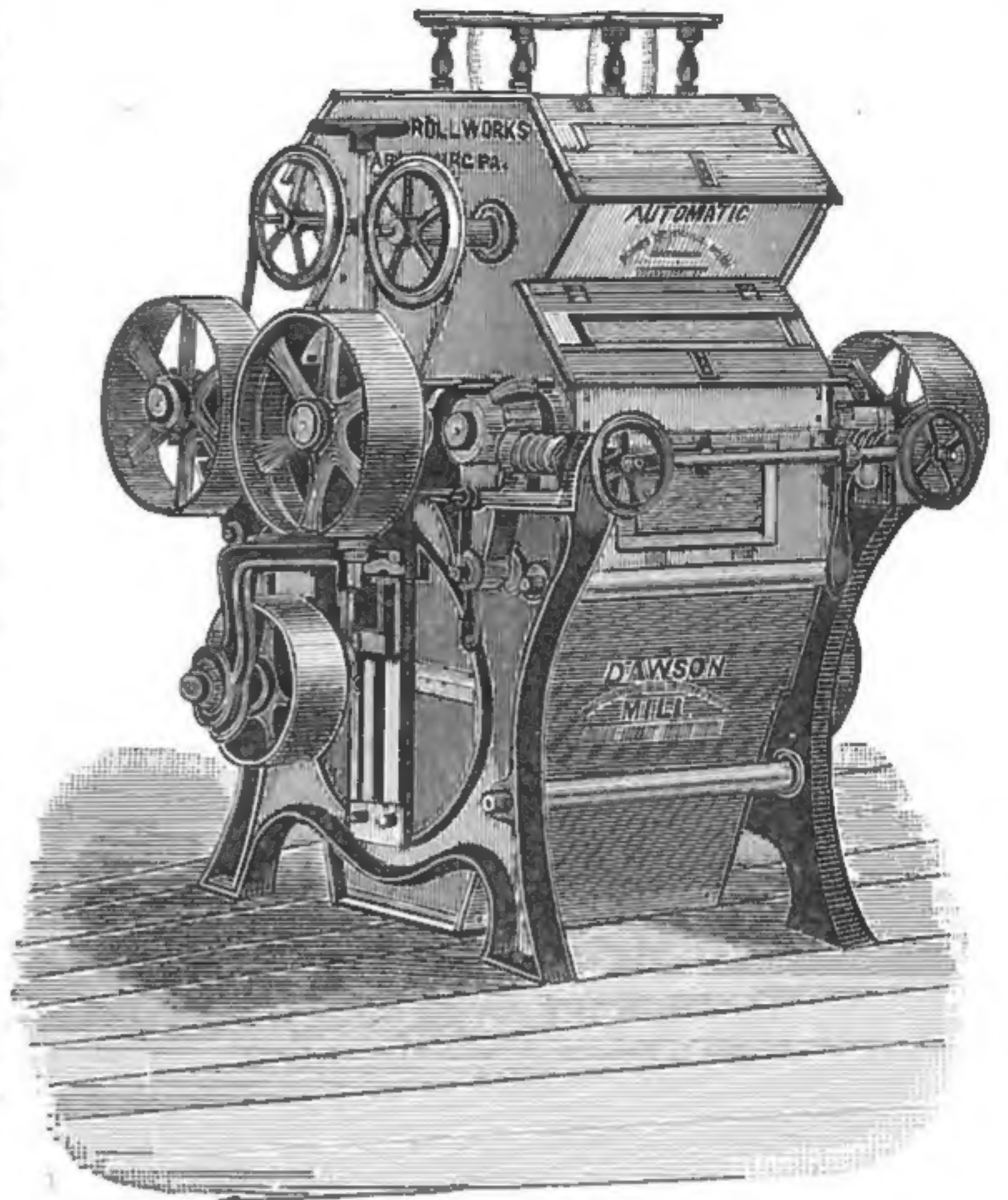
*We have a large plant to Re-grind and Re-Corrugate Rolls.*

Owing to our late increased facilities and central location we are enabled to ship goods promptly on the shortest notice.

PARTIES CONTEMPLATING REMODELING THEIR MILLS OR BUYING ANY ROLLER MACHINES ARE REQUESTED TO PUT THEMSELVES IN CORRESPONDENCE WITH US.

FOR PRICE LISTS AND CIRCULARS, ADDRESS,

## Dawson Roll Works, Harrisburg, Pa.



# The Cowles "Reliable" Sectional Wood Pulley



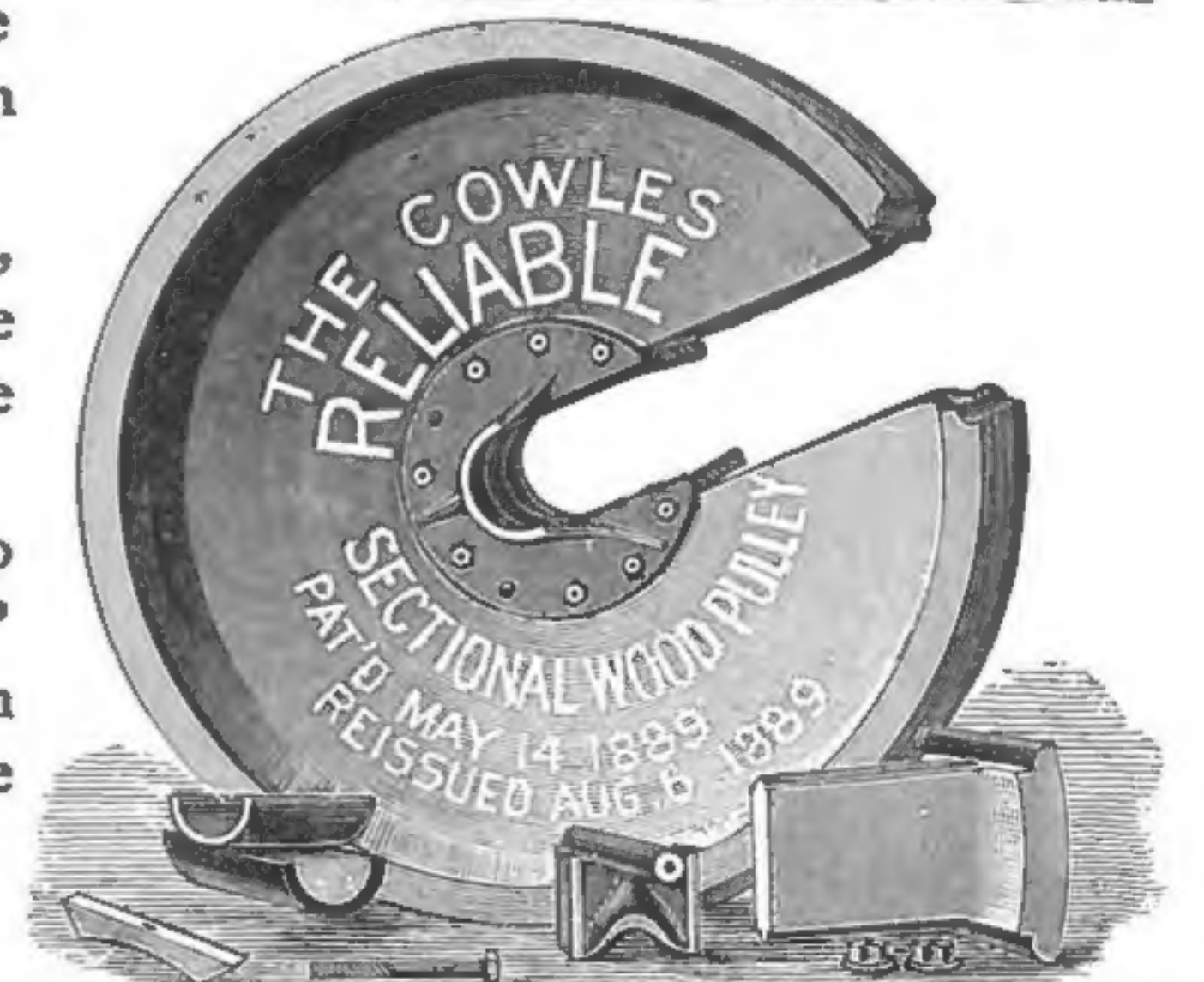
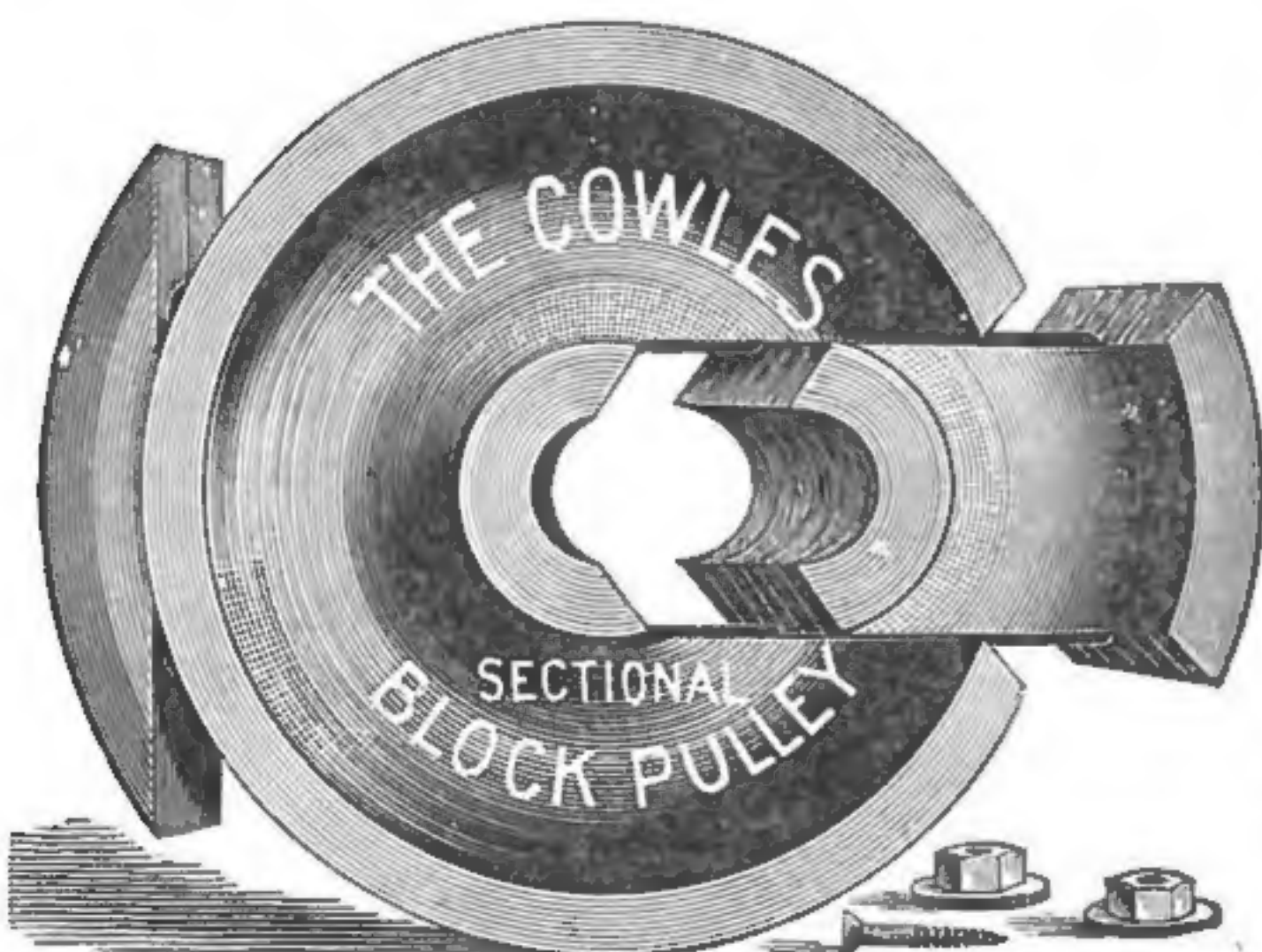
Web made of several layers glued together with grain crossing, and faced up on both sides. Iron flanges securely bolted to web. Rim put on after web has been trued up. Web and rim turned on inside and face, making perfect running pulley. Rim supported entire circumference. Positive self-gripping device for securing pulley to shafting, which is self-centering, and can not slip with wear.



A wooden rim pulley transmits from 30 to 50 per cent. more power with same belt than an iron one.

Two-thirds lighter than iron, bearings will wear longer and the expense for lubricant will be less.

Having solid web, there is no air resistance. The "Reliable" can be placed on shaft or position changed in one-fourth the time required with any other pulley.



EDWARD GERMAIN, SOLE MANUFACTURER SAGINAW, MICH., U.S.A.



PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,  
Over Bank of Attica.  
McFAUL & NOLAN, - - PROPRIETORS.  
THOMAS McFAUL. JAMES NOLAN.

**SUBSCRIPTION.**

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in unregistered letter at sender's risk.  
To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

**ADVERTISING.**

Rates for ordinary advertising made known on application.  
Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisements taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

**EDITOR'S ANNOUNCEMENTS.**

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

**THE MILLING WORLD,**  
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

**SITUATIONS WANTED.**

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

**SITUATION WANTED.**

Head miller with over 20 years experience want to make a change this spring. Address, A. MILLER, 67 Weaver Alley Buffalo, N. Y. Ad-4t

**WANTED.**

A situation in some flouring or grist mill, by a man who has had good experience with the buhr system. Can furnish best of references. Address, THOMAS H. NICHOLAS, DeRuyter, N. Y. 14

**SPECIAL ADVERTISEMENTS.**

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 8 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office 10 cents must be added to pay postage.

**WANTED.**

The address of Mr. Buhr Miller who was formerly a citizen of Prosperity removed to Adversity, and when last heard from was in Despondency looking for a job. By the will of his uncle Oliver he becomes heir to a modest fortune to obtain which he should address the FLENNIKEN TURBINE COMPANY, Dubuque, Iowa. Administrator.  
(Exchanges please copy)

**FOR SALE.**

One-Hundred Barrel Roller Mill, in one of the best winter wheat sections of the country. Wheat brought to the door in wagons, and flour can be shipped in any direction by six railroads and river. Splendid home market, here and in Louisville.  
Also a Sixty-Barrel Custom Mill, roller, running full time on custom, and can hardly keep up. Paying well now, but satisfactory rears n for selling. Either or both will be sold cheap. J. M. HAINS, New Albany, Ind. 263

**MILL MACHINERY FOR SALE.**

One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.  
One 20-Inch Under-Runner Portable Mill, French Buhr Stone, capacity 10 to 12 bushels per hour; new, best make.  
One 14-Inch Vertical Feed Mill; best make, new, a bargain.  
One No. 6 Dustless Separator; new, a bargain.  
One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.  
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.  
Three No. 1 Corn Shellers, capacity 200 to 300 bushels per hour; new.  
One No. 3 Purifier. New. Best make. A bargain.  
One 20-Inch Portable Mill.  
One 18-Inch Double Gear Portable Mill.  
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

**FOR SALE CHEAP.**

One 36-In. Iron Frame Portable Mill, French Burr Stone, Used about 2 months.  
One 20-In. Vertical Mill, French Burr Stone, Used about 30 days.  
Three Pair 42-In. Old Stock Feed Stones.

FOR PARTICULARS ADDRESS,

**SAMUEL CAREY, 17 BROADWAY, NEW YORK.**

**FOR RENT.**

Clinton Mills, at Black Rock, Buffalo, for rent on reasonable terms, recently repaired and put in good order. Apply to CHAS. DANIELS, over 311 Main Street, Buffalo, N. Y. 6tf

**FOR SALE.**

Flour and feed mill, with water power and three run of stones, for sale cheap; also dwelling house and garden. Situated half a mile from depot on New York and New England R. R. For particulars, address, MRS. M. E. DOUGHTY, Green Haven, Dutchess County, New York. 2427

If the members of the Consolidated Roller Mill Company wish to know what the millers of the United States think of them and their aims and claims, they should invite expressions of opinion. Every milling journal is discovering what are the sentiments of the millers, and it would pay the Consolidated people to make the same discovery.

EVERY those over-sanguine crop writers, who consider "the position of wheat the strongest statistically it has been for years," have ceased to repeat their theory. Wheat seems to be lead, so far as weight and weakness are concerned. It rallies a little occasionally, only to find a deeper depth on reaction. The continued weakness has silenced, if it has not tired, the sanguine bull writers.

THIS abnormal, "phenomenal" winter is likely to usher in an equally abnormal and "phenomenal" summer. Already the prematurely jointed winter wheat has been damaged to a considerable extent by the cold snap of late February and early March, and, with March skating in the orange groves of Florida, it is hard to imagine what may come later on, when the "phenomenality" shall have been fully developed.

It is hinted that the "national association of flour barrels and export sacks" at Minneapolis, in June next, will present a programme of exercises that will silence all cavilers and show that the "national" is really going to do something to recommend it to the millers of the United States. The programme that would most appropriately be carried out by the "national," that would silence all cavilers effectually and earn for the "national" the deathless gratitude of the flour-makers of the United States, is an exceedingly "short-system programme." Here it is, in one word: "Die!"

EVERY new report cuts off a little more from the "magnificent" wheat surpluses of Argentine Republic and Australasia. Shipments have been small, and some vessels, that were sent from the Northern Hemisphere into the Southern Hemisphere for cargoes of the "magnificent wheat of the present season," have returned to the Northern Hemisphere with cargoes of nitrates and anything else beside wheat. They found the surplus small and the grain badly damaged by rust, or "fungoid attack," as the Britons prefer to call it, and they wonder upon what basis all the exaggeration concerning the Australasian wheat was created.

It is claimed for Secretary Barry that his work is that of "organizing." That's all right. No one disputes it. No one denies that he has real ability as an "organizer." The doubt and despair come in when the observer contemplates the very probable action of the Minneapolis Malignants upon the association, after Secretary Barry shall have reorganized, rehabilitated and resuscitated it. They are the same old Malignants to-day that they were when they began to wreck the "national," several years ago. Secretary Barry may succeed in drawing in a large number of new members, but one annual meeting will be sufficient to drive most of them out again, unless the convention be conducted on different lines from those of the last three or four years. The "national" managers seem to be unable to understand that they have been pursuing a policy of repulsion, not of attraction. There is no single atom of evidence visible that the real powers in the "national" have changed, or that they care to change, their policy, so far as it relates to the average millers of the United States. Secretary Barry can not change the obstinate Minneapolis Malignant Millionaire policy, which is the real motive power of the present "national."

## RECEIVING TANKS ON HEATING SYSTEMS.

*"The Locomotive."*

The return of drips in heating systems that take steam directly from low-pressure boilers may be managed readily enough; but when high pressures have to be maintained in the boilers, for the purpose of running pumps or elevators or furnishing power, and the steam for heating has to be passed through reducing-valves, some new elements of difficulty come into play and call for careful consideration. Our illustrations show receiving tanks as applied to such systems. Our attention was recently called to a heating installation that was giving great trouble from pounding and rattling, and upon examination the receiving-tank was found to be arranged as in Fig. 1. As the faulty arrangements in this instance are very frequently met with, we shall describe them somewhat in detail. The returns entered the receiver through a three-inch pipe, shown at A, this pipe entering through the head near the bottom of the tank. The supply for the pump F, which returned the water from T to the boilers was taken from the bottom of the tank through pipe E. An escape-pipe was placed in the top of the receiver as represented at B, to relieve the pressure. Cold water was also admitted when necessary, through C; and in cold weather, when all the radiators were in use, this cold-water supply was admitted very freely, the claim being made that the return-through A was so great in such cases that the water in the tank would get so hot that the pump would not work, although it was placed properly so that the water would flow into it of its own weight. A glance at the arrangement of the system will show the steam-heating engineer the cause of the trouble. The return-pipe entering below the level of the water in the receiver, a considerable portion of the steam that is returned is condensed at once upon striking the cold water, and the concussion and rattling noise so produced is communicated through the piping to every one of the buildings heated. The trouble with the pump is that the returns enter close by and at right angles to the pipe through which the pump takes its feed, so that the steam that enters A along with the water of condensation breaks the current in the suction-pipe.

A proper arrangement of these connections is shown in Fig. 2, where the return-pipe, A, enters at the top, discharging the water of condensation upon the surface of that in the receiver. The escape-pipe has been removed, and the vapor collecting over the water can not pass off. By this removal of the escape-pipe a great saving of heat, and therefore of fuel, is effected, which saving can be approximately calculated by means of tables of the properties of steam. The pipe being  $1\frac{1}{2}$  inches in diameter and the pressure in the tank being, let us say, one pound above the atmosphere, a simple calculation shows that a prodigious quantity of steam will flow through it and go to waste in the course of 24 hours; and any one who is sufficiently interested to make the calculation will find that an escape-pipe like this one is a surprisingly expensive thing. The return-pipe, A, when

arranged as in Fig. 2, acts as a relay, and, if the pressure from accumulating vapor in the receiver equals that in the heating system, the water of condensation will flow into the receiver only as fast as it accumulates in the pipes. Thus the connections and returns may be kept flooded so that all noise in the pipes will be prevented. It is well, when all the pipes to the radiating surfaces are of good size and the pressure throughout the system uniform, to run a small pipe from the steam-main to the receiver so as to prevent the water from being blown out of the return-pipe. This will make the flooding of the connection sure, and the small pipe may very easily be so arranged as to remove the drip from the main steam pipe, as well as to keep up the pressure in the receiver. A drip-valve should be placed at the lowest point of the return pipe for draining it when it is not in use, and one should also be placed on the receiver to remove air and prevent an air-bond in first starting up the system.

In Fig. 2 the pipe that supplies the pump E is represented as connected to the head of the tank. This is by no means essential; the best place to connect it will readily be found

from the circumstances of each individual case. If it is run into the bottom of the tank, as shown in Fig. 1, it should project four or five inches into the tank, so that any sediment that may be in the water may deposit on the bottom plates and be removed through the blow-off shown at D in Fig. 2, and not pass through the pump. The engraver has represented the cold-water supply-pipe, C, as running the length of the tank before it discharges. This is also not an essential feature. We should prefer, in fact, to have C discharge into the tank directly, without the intervention of the elbow and horizontal pipe. In Fig. 2 a second return-pipe is shown at B, to illustrate a point that it is sometimes useful to know about. Ordinarily all the drip would be returned through the one pipe, A. There

may be some radiators, however, that are supplied through pipes that are too small to allow the free passage of sufficient steam; or some of the radiators may be so nearly on a level with the water in the receiver, T, that they will not return their drips freely enough through A. In such cases it is often advantageous to allow these radiators to return their water through a separate pipe, B, that enters the tank eight or ten inches or a foot lower than the surface of the water in pipe A. This will give the ill-conditioned radiators the advantage of a correspondingly less static pressure to return against and will equalize the circulation all over the buildings.

## CANADIAN CEREAL TARIFFS.

Canadians are preparing to make important changes in Canadian cereal duties. A letter from Ottawa, written March 4, says: The tariff measure which the Government and their supporters are engaged in incubating promises to be of a sweeping character. Many of the claims urged by clamorous deputations in behalf of the infant industries will be recognized by the imposition of more taxation, and it has been settled that the duty on flour shall be increased from 50 cents to 75 cents a barrel. This is not all the millers de-

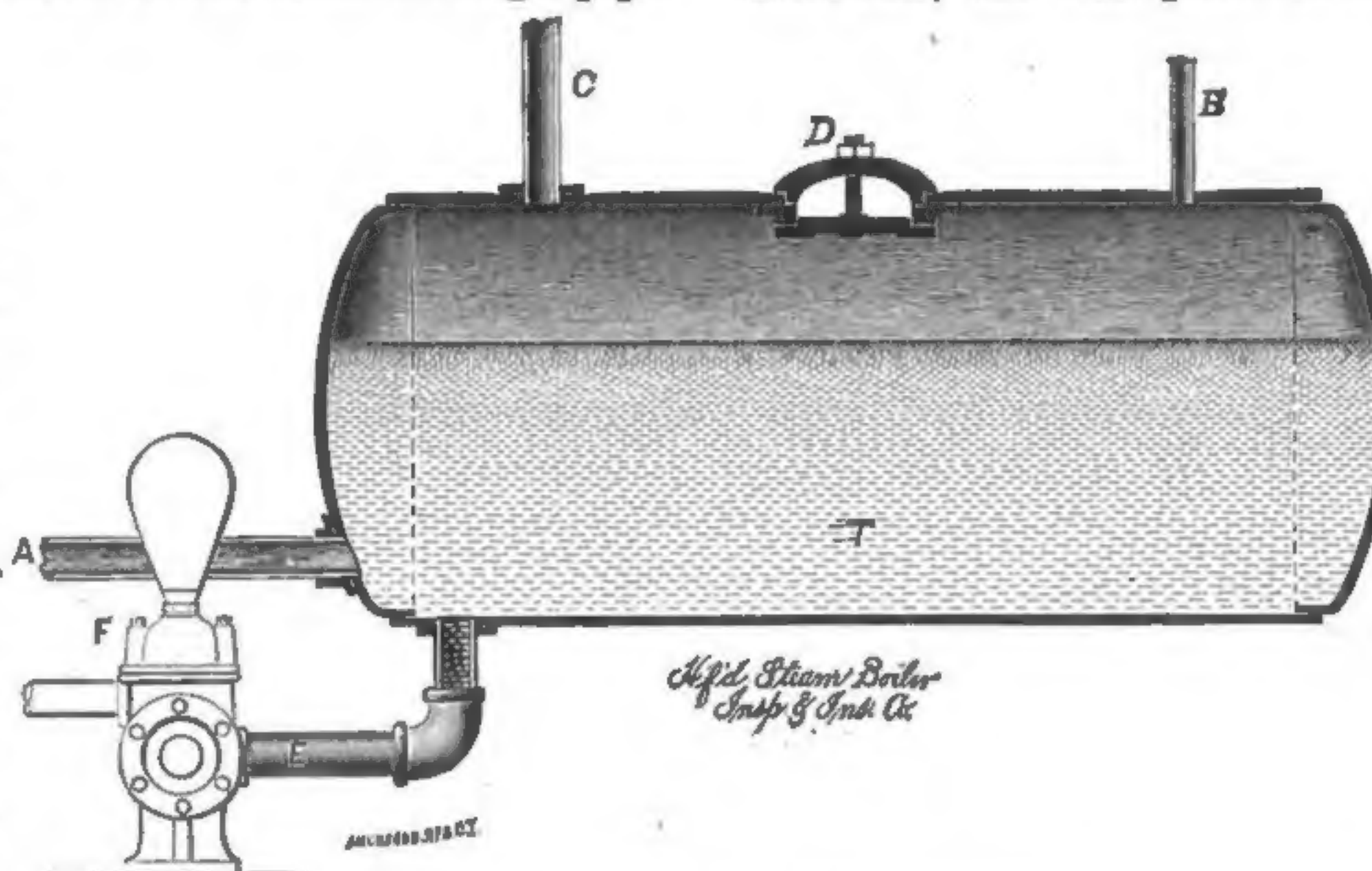


FIG. 1.—INCORRECT ARRANGEMENT

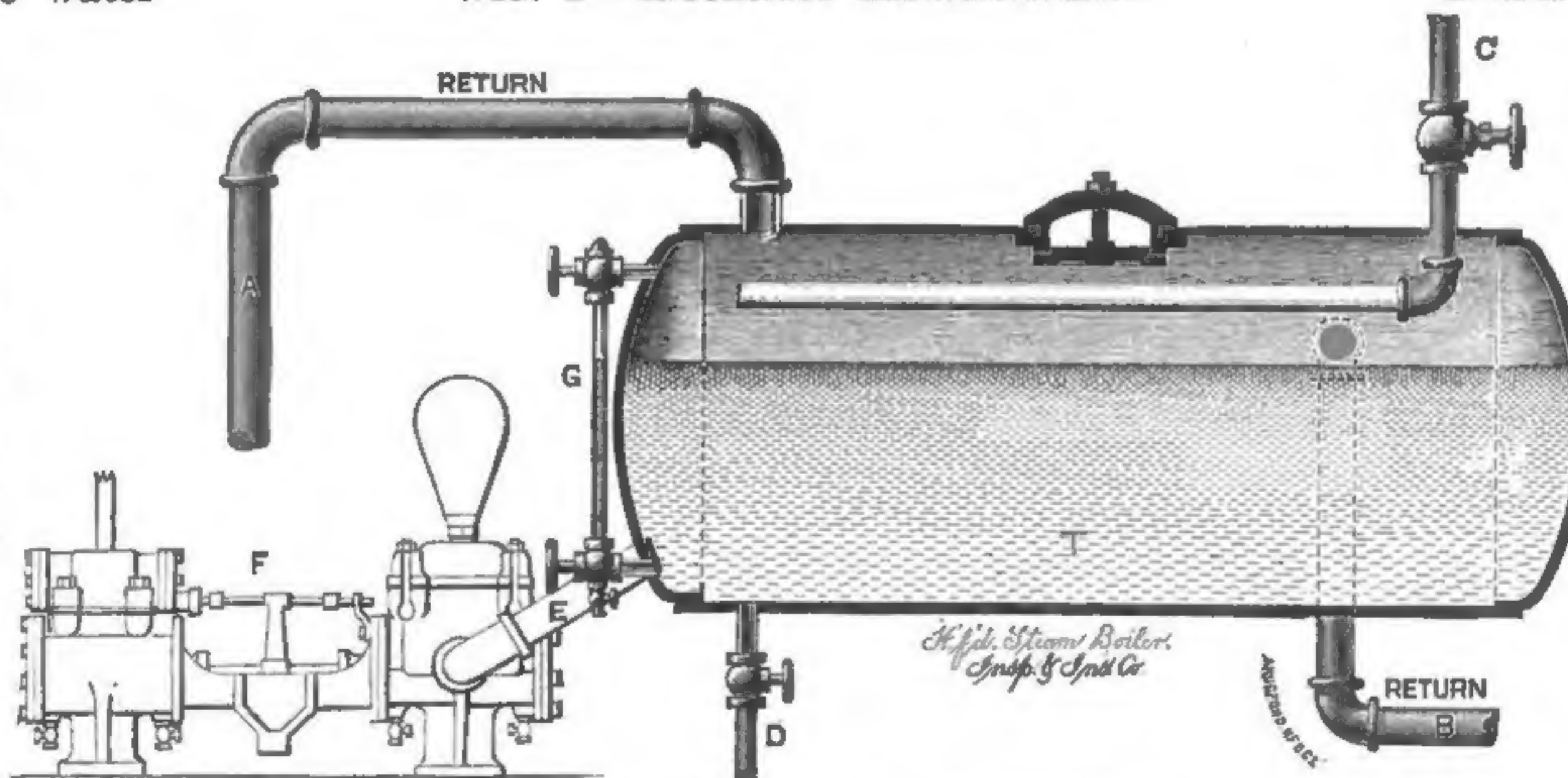


FIG. 2.—CORRECT ARRANGEMENT.

mand, but it is as much as the Government dare concede in the face of the feeling in the eastern provinces. In order to reconcile the maritime supporters of the Government to this increase the duties on corn and corn-meal will be removed. The true bearing of this compromise will be revealed by a brief examination of the trade and navigation returns. Our importations of flour for the several provinces last year were as follows:

Province.	Barrels.	Duty.
Ontario.....	9,344	\$4,672
Quebec.....	199,816	99,908
Nova Scotia.....	13,923	6,961
New Brunswick.....	3,470	1,735
Manitoba.....	1,730	865
British Columbia.....	27,719	13,859
Prince Edward Island.....	1,389	694
Total.....	257,391	\$128,694

We imported Indian corn from the United States as follows:

Province.	Bushels.	Duty.
Ontario.....	1,861,240	\$139,593
Quebec.....	625,325	46,901
Nova Scotia.....	186,584	13,993
New Brunswick.....	218,410	16,380
Manitoba.....	150	11
British Columbia.....	3,022	226
Prince Edward Island.....	88	7
Total.....	2,894,819	\$217,111

Our imports of corn-meal for the several provinces were as follows:

Province.	Barrels.	Duty.
Ontario.....	11,813	\$4,725
Quebec.....	2,307	922
Nova Scotia.....	111,055	44,422
New Brunswick.....	22,005	8,792
Manitoba.....	1,344	537
British Columbia.....	572	229
Prince Edward Island.....	3,927	1,570
Total.....	153,023	\$61,197

Thus Quebec, British Columbia and the eastern provinces paid duties on flour to the amount of \$124,000 and on corn and corn-meal to the amount of \$134,000. By the proposed re-arrangement of the tariff these provinces will be relieved of the \$134,000 paid on corn and corn-meal, while the tax on flour will be increased by 50 per cent. The burden will fall rather heavier on the consuming masses, but the eastern Tory members have decided that they can put the necessary pressure on their constituents, and this feature of the tariff changes may be considered as settled. The taxes on flour and wheat will be pretty nearly equalized.

According to the accepted estimate, the duty on the raw material of a barrel of flour amounts to 72 cents, against a tax of 50 cents on the finished product. We imported last year but 258,000 barrels of flour for home consumption, so that, even if the millers are enabled to possess the home market, the advantage will not be great. The simple result will be to increase the price of flour to consumers by 25 cents a barrel and to leave the millers struggling to maintain a declining and unprofitable business. It will not be forgotten that the millers were the first to clamor for protection. They seduced hundreds of Liberals from their allegiance to the Mackenzie government and were largely responsible for the fastening of the protective system on Canada. They can not look for a great deal of sympathy from opponents of the tariff. The removal of the duties on corn and corn-meal will mainly affect the counties of Kent and Essex, and perhaps Middlesex in less degree. These are the corn-growing districts of Canada.

#### PROGRAMME. OR FLOW OF STOCK.

J. MURRAY CASE.

##### VII.

A programme of a mill is that which shows the point from which each product is taken and the place to which it is delivered, from the time the wheat enters the first cleaner, on through the varied manipulations, until it passes off as flour, bran and pollard. A programme is the science of milling. However good a line of machines we may employ, if the programme is deficient the mill may be a complete

failure. After the wheat has passed the cleaning-machines and been delivered to the first-break, the balance of the programme consists, when correctly made, in one continued effort to separate the bran and germ from the starch and gluten, and the latter being reduced to a granulation best suited for flour. The above sentence embraces the whole science of milling. There is nothing else in it only to separate and granulate; but to accomplish this has brought forth an astounding number and variety of machines as well as systems of separation, or programmes.

The most perfect programme is that one which delivers the bran and pollard to the bin quickest, or at least as much of it as it is possible to do, and which, when it has made a separation of impure stocks, never permits them again to become mixed with the good and pure material. The shortest programme now in use is as follows: First operation—Deliver wheat to millstone hopper from farmer's bag. Second operation—Bolt it through No. 6 or 7 cloth and scoop it up with a wooden paddle out of a box below the reel. There are plenty of mills of this kind still in operation, some not ten miles from London; and there are bakers (?) in London who have pretended to say that they would not try any flour only such as the miller made on the above system. It does not require much experience or expert talent to programme this kind of a mill; hence the science of milling, as developed in former days, consisted in stone dressing and balancing; and whatever advantage one mill obtained over another came from this, as the programme was alike in all.

The shortest programme in roller-milling which can be made to act automatically and make a good finish would consist of one wheat-cleaner; one 4-roll mill (corrugated) making two breaks, and one 4-roll mill (smooth) for middlings; one short reel for first-break, with tail-sheet for middlings; one similar reel for second-break; one purifier and one reel for first middlings; and one reel for second middlings. A mill with this limited number of machines may be so programmed as to make no return, a fairly good finish and a very white flour, but of a soft texture. The plan consists in the use of a fine corrugation, 20-cut on first-break, 24 on second, and large differential, 6 to 1 if possible, to get on first break. Then spread or deliver wheat thinly and grind nearly to a finish at one operation. This will make a very large percentage of flour—from 60 to 80 per cent. being reduced so that it would pass a No. 9 cloth, which is fine enough for this flour. The bran being so softened by this severe break, the flour may be bolted out without scalpers, and there being so little middlings made, the one double stand of rolls will finish them; consequently the yield may be as good as in some of the most elaborate mills.

This class of mill is especially adapted to small water-powers, having only 6 to 10 horse-power. I have erected many such mills in the United States, and they have proved successful. They make a very white flour, in fact, the whitest flour (whole product) I have ever seen has been made on one of these very short mills; but it lacks in sharpness of granulation, and therefore I do not advocate it as the most approved roller system, but it is a great advance over the millstone and is applicable to mills of limited power and within reach of millers of limited means. It would be a desirable system for the small water-powers of France, in which country there are about 15,000 of these small mills, all being of about the same style. In that country also the baker looks for color more than granulation, and consequently the softness would not be so much of an objection.

Leaving this shortest style of automatic roller mill, as applicable to mills of 6 to 10 horse-power, we come next to those mills having from 15 to 25 horse-power; and the intelligent expert who understands his business (and I may say right here that it requires years of experience and many failures to learn it, and that it has the most intricate difficulties and modifying conditions of any business known), he who understands his business will first study the possibilities of the power and what he can rely upon in the most unfavorable circumstances, and then calculate the extent of the system from this standpoint. It is a very grave mistake to load a mill of limited power down with a lot of surplus machinery;

it is almost criminal, from the fact that it not only requires of the miller payment for unnecessary machines, but it loads upon him the expensive burden of running them for years to the reduction of his output and to his great loss. Yet this very thing is constantly being done, very often, for charity's sake I will say, through a lack of sufficient experience on the part of the expert, who has seen Jones's mill and builds one like it, although Jones has double the power; therefore the expert is not able to adapt himself to the new conditions and so makes a failure. The miller gets a mill in which he expects to make flour just as good as Jones makes, but his mill drags, and he takes off feed until it is not loaded, when it manages to turn in a breathless sort of manner; but a mill with purifiers half loaded, and bolts running with half feed, can never make any thing but a dark flour.

It is a much worse fault, but not generally recognized, to have a mill under-loaded than over-loaded, as in the latter case the finish may not be so good, but the flour will be better; while in the former case, especially in the European single conveyer system, which gives no control, the flour will always be dark in color. This is inevitable, and so the business of an expert in programming the flow of stock is one of grave responsibility. But I started to say that the next mill above the 2-break mill for light powers is the one in which from 15 to 25 horse-power can be relied upon. In such a mill we may use four double stands of rolls, four scalpers, four flouring-reels and two purifiers, making the size of machines to correspond with power and capacity required. In a mill of this kind I would use three breaks on wheat and five reductions on middlings. This will produce a good mill and one that will compete favorably, in quality of flour, with the most elaborate plants. This plant should be erected for such mills as require from 1½ to 2½ sacks per hour.—*London "Millers' Gazette."*

#### THE LONG AND SHORT HAUL INSANITY.

Light is breaking in the twilight West. The Interstate Commerce law is disgusting its fool advocates. Says the Minneapolis, Minnesota, "Pioneer-Press": "When the long-haul principle was first proposed for application to American interstate commerce, it was supported by the argument that it would benefit the small town and country districts as opposed to the great cities. And yet, after a few years of actual trial, in which the long-haul rule has been, perhaps, observed more generally and more punctiliously than any other portion of the law, the petition for its virtual repeal that is most strenuous comes in the name of the farmer himself. What the farmer needs to save him is a low through rate for his crop to the markets of the eastern sea-board; and in the way stands the iron-clad rule of the long-haul clause. The railroads have been prevented most effectually by this stupid and wicked piece of legislation from affording the relief that they might otherwise have given. And when we talk about the injustice that an immediate repeal of tariff duties would do to industries established on a tariff basis, we forget that we have done exactly that same injustice to the farmer in passing the interstate law, although it is true that he has himself to blame for it. Just what the opponents of the long-haul rule predicted has happened. The low through rate is a thing of the past, and the farmer finds himself shut in upon the home market, completely glutted with the things that he has to sell. Indeed, it would not now be a sufficient relief to give him access to the markets of the East. By our own deliberate act we have cut ourselves off from the foreign market in large measure, and the producer is beginning to feel the weight of the burden that he has laid upon himself. The farmers of Nebraska are clamoring for relief from the King Stork that they set over themselves. And the farmers of every other section are suffering the same evil wherever the long-haul is carefully obeyed. It ought not to be long before Congress comes to its senses sufficiently to see that this long-haul rule is one of the greatest curses railroad legislation has left us. It is foolish to talk about amending the long-haul clause, or giving to the Commission a limited power of suspension in special

cases; because this is a power which they have always possessed and have been too timid to exercise. There is but one thing to do, and that ought to be done as speedily as possible. The absolute repeal of the long-haul clause will be a benefit to every class in the community, not least to those who were at first most earnest in asking its enactment."

The Louisville "Courier-Journal" says: Senators are at last having a return of reason on the subject of transportation. Four years ago, with the most extravagant assertions of what legislation could do to lessen the cost of transportation, they passed a law forbidding a greater charge for a short than a long haul. It was pointed out at the time that this was an outrage on international commerce. In the State and in the press the operation of the law was pointed out, and it was demonstrated that it would curtail the market of the Western farmer. Thus we are to have an artificial and arbitrary system of rates in place of the rates established by competition between rail and water routes, competition between cities, competition between products and producers. It was called 'ruinous competition' four years ago; that is, ruinous to the railroads; now we have as 'a measure of relief' a system of rates that is ruinous to the farmers. The only adequate relief is to repeal the long and short haul clause altogether. Indeed, the scheme is a failure; its chief benefit reaches the older lines of railroad, and the repeal of the whole bill is the only honest way to deal with the subject."

#### WHEAT GROWING IN CALIFORNIA.

Writing on wheat-culture in California, Charles H. Shinn says in an agricultural paper: The wheat crop of California bids fair to increase steadily year after year. Very few persons know how large is the area of excellent wheat land yet unused, except for pasturage. About 3,700,000 acres are now seeded to wheat annually, but fully 10,000,000 acres in the State are wheat lands. Of the 115,000,000 acres in California, I rate 30,000,000 as fully arable, and to allow 20,000,000 acres for all farm purposes, other than wheat-growing, does not appear unfair. If the yield per acre can be increased by better culture, as our most practical farmers expect, California will each year cut a larger figure among the wheat-growing States. The broad, rich Californian valleys were considered worthless for wheat in the days of '49. It was the general conviction that wheat would always have to be brought here from other countries. In 1851 and 1852 a little wheat was sown and harvested. The successful wheat crops of the old Spanish missions were remembered. By 1854 the immense profits of wheat were recognized. In 1856 the total crop of the State was 87,000 tons (of 2,000 pounds), grown on 200,000 acres. Ten years later the space seeded had grown to 750,000 acres. It is now 3,700,000 acres.

We ought to be able to grow half a ton of good marketable wheat on every acre of our wheat lands, but we do not. In 1856 the average crop was 13 per cent. below this standard, and the present year it is nearly 40 per cent. Still the outlook is now favorable to a decided gain in the average, because, while it is the very large wheat farms that reduce the average crop, it is the very small farms that increase the percentage of cost per acre, and both the very large and the very small farms are disappearing. In the valleys, such as Santa Clara, there are many wheat districts where the fields range in size from 5 to 50 acres. Here the yield is far above the present average, being from 12 to 25 centals, instead of 6 centals, per acre. The soil is rich, the land is clean, the system of cultivation is better than on the great "bonanza wheat farms," and it is only this immense yield that compensates the farmer who pays taxes on much more valuable land. I once saw ten acres of wheat in the Pajaro Valley cut and threshed. The yield was 600 centals, and over 50 prominent farmers were present to see the result. The wheat was worth over \$100 per acre on the ground, at the prices then ruling. All the "famous yields" of wheat in this valley have been on land rotated about as follows: potatoes one year; corn or beans one year; wheat one year; volunteer

wheat used for pasturage one year; then potatoes again, or sugar beets.

The wheat farms of the upper San Joaquin and of the Sacramento Valley are mainly large and are cultivated chiefly on the "summer fallow" system, except where winter irrigation has been adopted. It is the droughts which occur almost every year somewhere in the interior of the State which render wheat-farming so precarious and reduces to so low a figure the average of the crop. But, during the past three years, some forty "irrigation districts" have been organized, and the more dry portions of the State will soon be supplied with water for winter use. The tendency is, therefore, to break up the 10,000 and 20,000 acre farms. Prominent wheat-growers say that the time is coming when "a section" will be considered a good wheat-farm, and on such a farm the expenses of handling can be kept down to the lowest figure, while the average yield will be greatly increased. California ought to produce 5,000,000 short tons of wheat on 10,000,000 acres of hill and valley, and do this nine years out of ten. The problem is always one of cost. The advantages which California possesses are these: the cheapness of wheat-land; the low rate of taxation; the abundant water supply; the great fertility of the soil; the facilities for cheap transportation to the sea-board and the cheap freights to Europe; the excellent quality of the product, and the inventive ability which has so greatly reduced the expenses of cultivation and harvesting. California is and will always be a leading factor in the world's markets for high-class wheat.

The Spaniard often sowed wheat on unplowed ground and dragged it in with branches of trees. The first American settlers used single plows and home-made triangular harrows. In 1852 and 1853 some wheat was cut with a scythe. As late as 1860 a good deal was bound in sheaves, in the old-fashioned way. But a demand for "improved machinery" was stimulated by the high price of labor. As early as 1859 John M. Horner, of Alameda county, invented and built a "combined harvester," which contained the principles of the great machines of the present time, and ought to have made him a rich man. His machine, which cost over \$12,000, was destroyed by fire, and no other harvesters were built for many years. The usual method of preparing soil for wheat is with a "gang" of 6 plows. On light soil only 8 horses or mules are required, but on heavier soils more are attached, until as many as 24 horses can be seen breaking up hard adobe for "summer fallow." On large ranches a dozen "gangs," each with its driver, can be seen moving back and forth across the immense fields. In the most advanced system only 5 plows are used, but a seed-box and good steel-toothed harrow are attached, so that the plowing, seeding and harrowing are done at one operation. Some soils have to be plowed twice and harrowed with a heavy 8-horse harrow before being seeded. But when the whole work can be done at one operation, it costs less than \$1 per acre for labor. Harvesting is done by an improved header and thresher, which cuts, threshes, cleans and sacks the wheat and drops it in piles of a dozen sacks, to be gathered up by a wagon. The machine requires from 20 to 40 horses and from 3 to 8 men, and it can not be run on hilly land. In many places, therefore, the old-fashioned reapers and standing threshers are still used. The cost of the latter system is about \$3 per acre, while the combined harvester handles the crop for \$1.75 per acre. The rainless summers of California make the wheat so dry and hard that no "sweating" is necessary. General Bedwell, one morning, had wheat cut, threshed, sacked, taken to his flour-mill, ground, taken to his house and made into biscuit for breakfast, all within 2 hours! Without counting the cost of seed-wheat, the machinery in general use here puts in crops and harvests them at a cost of \$2.75 to \$5 per acre.

Mr. Alfred Bannister, manager of one of the largest flour-mills on the Pacific coast, contributed a year ago a pertinent table on the cost of wheat production. He first figured upon the purchase of 4,000 acres of fair wheat-land, at \$25 per acre, in a locality where it is best to summer-fallow 2,000 acres yearly, placing the production at 1,080 tons annually.

These 1,080 tons of wheat are worth, one year with another, in San Francisco, \$1.40 to \$1.50 per cental. Taking the lowest price, we get \$30,240 as the value of the crop. This is over 13 per cent. profit, besides the 6 per cent. already allowed for interest on cost of land. This estimate has been endorsed by many successful wheat-farmers. To put the matter in another form, the cost of growing 100 pounds of wheat in California, including interest on land, is about 80 cents. In many cases, on large farms, this cost has been reduced to 55 cents; in one case known to the writer the wheat was grown and delivered at tide-water for 42½ cents per 100 pounds. Mr. Bannister's estimate is as follows:

## COST OF CROP.

Interest for one year, at 6 per cent., on cost of 4,000 acres at \$25 per acre (\$100,000).....	\$6,000
Taxes, for one year, on 4,000 acres, assessed at \$10 per acre, (\$40,000), at 1.5 per cent.....	600
Plowing, seeding and harrowing 2,000 acres, at \$1.....	2,000
\$1.50 per cental for seed, 60 pounds per acre, 2,000 acres.....	1,800
Harvesting by combined machine 2,000 acres, at \$1.75.....	3,500
Wheat sacks at 7c. each, 3 sacks per acre, 2,000 acres.....	1,120
Hauling and freight of crop to tide-water, and sundries, \$2 per ton on 1,080 tons of wheat.....	2,160

Total cost of 1,080 tons of wheat at a tide-water..... \$17,180

But the last two years have witnessed another development of machinery in California wheat-culture. Steam-power has been successfully applied, and a very great reduction in cost has been made. In the summer of 1889 a large number of field-engines, built here on California designs, were in the fields with astonishing results. The largest of them cut a swath of 40 feet and harvested the crop at a cost for running expenses of less than 25 cents per acre, against \$1.75 on the old system. The same engine is expected to plow, carrying 12, or 20, or even 40 plows, and, since it is a road-engine, it will haul the crop to the nearest station or landing at less expense than if hauled by horses. The price of such an engine, with the harvester and thresher, is from \$5,000 to \$8,000 at present, but this cost, it is said, will soon be reduced. From the talk among wheat-growers, two or three years will witness the introduction of steam on all the large ranches. The engines are "straw-burners," or, when plowing, wood can be used. Coal is very high on the Pacific coast, and therefore coal-burning engines will never be profitable here. I have asked wheat-raisers what they thought the cost of plowing, harrowing, seeding, harvesting and delivering at the station would be, if these steam-engines do what is expected. They answer: "About \$1 an acre, on the easily-farmed lands, and not more than \$2 anywhere." This, then, is the way that California can successfully meet the competition of India, Russia, Siberia and the Argentine Republic.

The Case Mfg. Co., Columbus, O., have received the contract from Seely & Jackson, Whitney, Neb., for all the necessary rolls, flour-dressers, round scalpors, purifiers and other machinery for a full roller mill on the Case system.

## SPECIAL NOTICES.

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N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

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Shafting, Pulleys, Hangers, Coupling, Machine and Jobbing, Etc., Etc.



**A NEW LUBRICANT.**—A new mineral oil, termed dynamine, having the consistency of butter, has recently been introduced to the manufacturing public by La Compagnie Française des Graisses Minérales Consistantes. The new substance is not acid and is free from resinous matter and drying oils. It is very stable in character and does not undergo any change when exposed to the air. Its buttery consistency does not appear to be due to the addition of paraffin, vaseline or wax to a liquid oil, as it has a definite melting-point at 84° C. and does not inflame at a temperature lower than 220°. In color it resembles butter, and it has no appreciable odor. These properties give it an especial value as a lubricator, and, as it has no chemical action on metals, dynamine is likely to be extensively used for the purpose.

## GENERAL NOTES.

THE largest sheet of plate-glass ever cast in the United States is claimed by the Diamond Plate Glass Works, of Kokomo, Ind. Its dimensions are 122 by 202 inches, or 170 square feet, and its weight in the rough was 1530 pounds. When finished it weighed 582½ pounds. The next largest plate ever cast was at Crystal City three years ago. That plate was 130 by 186 inches, but, while 8 inches wider than the one cast at Kokomo, it was 16 inches shorter.

### ALLIED TO MILLING POETRY.

#### ODES TO WESTERN FARMERS.

Little drops of freight rates,  
Lower price for corn,  
Make the western farmer  
More and more forlorn.

*Chicago "Daily Business."*

Heavy hunks of Interstate  
Long and short haul fool laws,  
Which the farmers did create,  
Are the only potent cause!  
Little hunks of common-sense,  
Less fool hayseedism all-fired,  
Would bring the farmers off the fence,  
Feeling less extremely tired!  
Mighty hunks of swift repeal,  
Let the railroads hoe their own,—  
And those farmers quick would feel  
All contented to the bone!

*Duluth, Minnesota, March, 1890.*

*Bang.*

### COTEMPORARY COMMENT.

Gil Pierce, of Dakota, is on his way to Washington, to urge Congress to relieve the farmers by paying them a bounty of 15 cents per bushel for all wheat exported from this country. This would be a beautiful scheme—for the foreign consumers. —*Chicago "Daily Business."*

Nothing but accidents to the crop now growing in America or in some other parts of the world have seemed competent to lift breadstuff from the rut it has fallen into. —*Minneapolis "Market Record."*

Anything that tends to the simplification of our orthography has an obvious argument in its favor. Some very stupid people are champion spellers, and some very capable and successful men are incurably weak on this point. —*New York "Mechanical News."*

We are under the impression that the threats of the farmers in certain localities to form stock companies to erect mills, as a means of enabling them to be independent of those so-called extortioners, the millers, was simply a device to secure the abandonment of the system of buying wheat by tester. We could not persuade ourselves that with their opportunities for observation the farmers could seriously

entertain the opinion that they would make money by entering the milling business. It appears, however, that such is the conviction which some of them at least hold, as we read that the farmers of Walpole and Oneida townships have formed a joint-stock company with a subscribed capital of \$11,000 to erect a new roller-mill in Hagersville. —*Toronto, Can., "Electrical, Mechanical & Milling News."*

It is reported that the oatmeal trust has ordered one of its Ohio mills to shut down, because supplies of meal have accumulated greatly in excess of the demand. Can any one tell us what the Consolidated Oatmeal Company will do when the numerous oatmeal mills now being built throughout the West are completed? Will it continue to crack oats, or will it crack itself? —*Chicago "American Miller."*

### MILLING PATENTS.

Among the patents granted March 4, 1890, are the following:

Reuben N. Robinson, Sidney, O., No. 422,542, a grain-weighing and registering apparatus, containing the combination, with the elevator-spout provided with a projecting pin on each side, of a steelyard shaped to embrace loosely the two sides and front of the spout and fulcrumed on said pins, a hopper provided with a hooked arm at each end for engagement with pins projecting from the sides of the steelyard, and having a grain-passage at each end in its lower portion, an apron mounted on a shaft journaled in the hopper, said shaft being provided with a handle, adjustable guides for limiting the movements and covering the upwardly-tilted end of the apron, a registering apparatus on the hopper, and pawls pivoted to the handle for operating said apparatus as the apron is tilted.

Charles J. Pilliod, Swanton, O., No. 422,623, a feed-regulator for roller-mills, containing the combination, with a hopper, of a supplemental hopper arranged above and communicating with the same, and a divider arranged between the two, an automatic vertically-adjustable feed-gate journaled within the supplemental hopper and at an angle to the divider, an arm attached to the feed-gate, and an adjustable weight sliding upon the arm to vary the position of the feed-gate, and a vertically-reciprocating feed-board, located also within the hopper adjacent to and parallel with the free end of the feed-gate and moving past the same to feed the stock into the machine.

Henry Earle, Canon City, Colo., No. 422,747, automatic grain-scales, containing the combination, with a scale-beam, of the receiving-drum having conical ends and divided into two compartments by a partition which is at an angle to a horizontal plane when the drum is in its receiving position, the drum being provided with diametrically opposite openings, one for each compartment, and the ends of the drum with trunnions by which it is journaled in the said beam.

James A. Gowans, Stratford, Ont., Can., No. 422,766, a screw-conveyor.

James F. Hatfield, Dublin, Ind., No. 422,776, a grain-separator or fanning-mill, containing the combination, with the upper or top screen-shoe and its actuating mechanism, of the right-angle lever having changeable connections with said shoe, one at its upper end and the other at its angle, the lower end of said lever having a fixed pivotal connection with the closure or casing.

Grant U. Pollard, Sedgewick, Kans., No. 422,832, a rotating grain-meter, containing the combination of a supporting-frame having side uprights and a cross-beam, anti-friction rollers mounted in recesses in the uprights and projecting beyond their inner faces, a sliding frame fitting between said uprights and provided with projecting cleats carrying anti-friction rollers to bear on the sides of said uprights, a rotary winged receiver, mounted in said sliding frame, stop-roller arranged on the cross-beam, and a scale-beam connected to the sliding-frame.

Noah W. Holt, Manchester, Mich., No. 422,785, a separating-machine, containing the combination, with the exhaust-chamber, of the shaker arranged at the lower part of the exhaust-chamber, a conduit to receive tailings which pass

over the discharging end of the shaker, a fan connected with the exhaust-chamber to receive a dust-laden air-current, an eddy-board adapted to deflect part of the material taken up by the air-current, whereby the heavier portion of such material is discharged through the conduits with the tail-

ings, a conduit to receive material which passes over the shaker but is not delivered to the tailings-conduit, and a valve to regulate the strength of the air-current which passes upward between the eddy-board and the adjacent part of the shaker.

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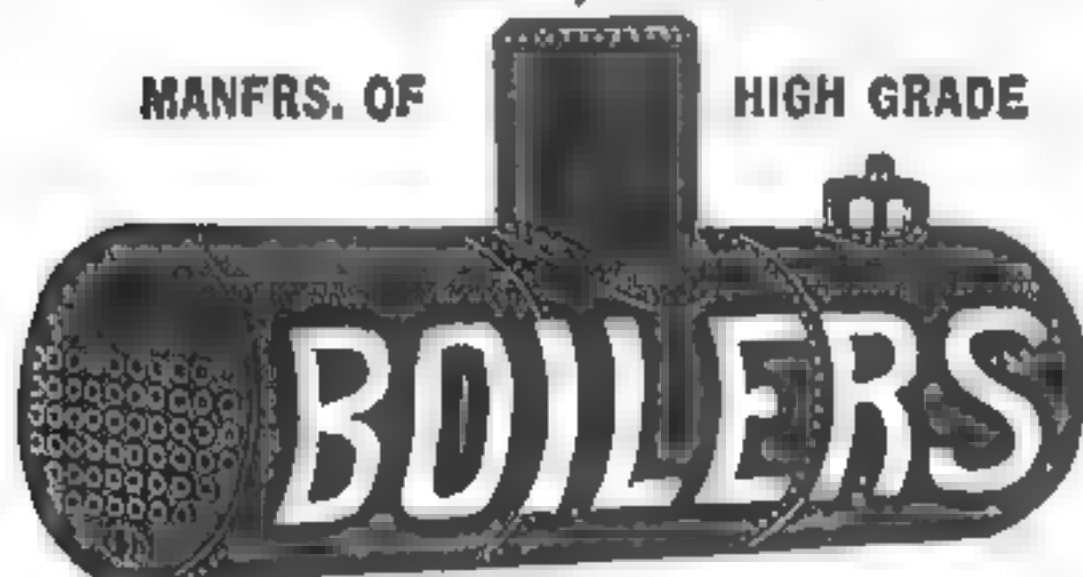
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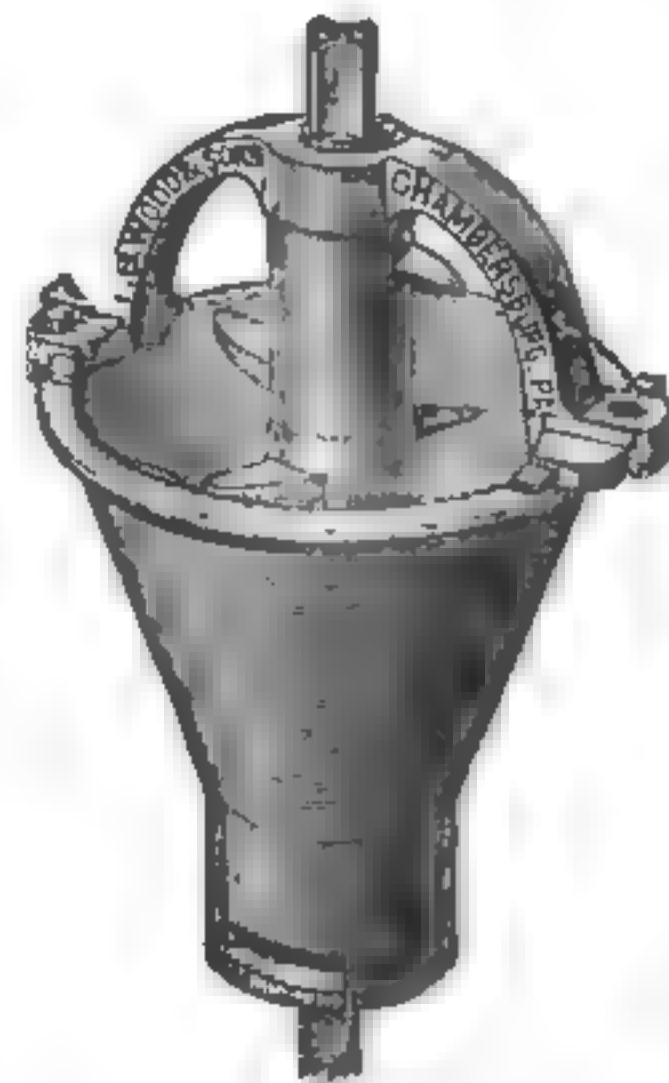
All wearing parts cast of a steel mixture. Notice difference in construction. Most area where most work is done, where all other crushers have least area where most work is done. Low priced machinery is not the cheapest, considering durability and efficiency. Sent on 80 days' trial when satisfactory reference is furnished.

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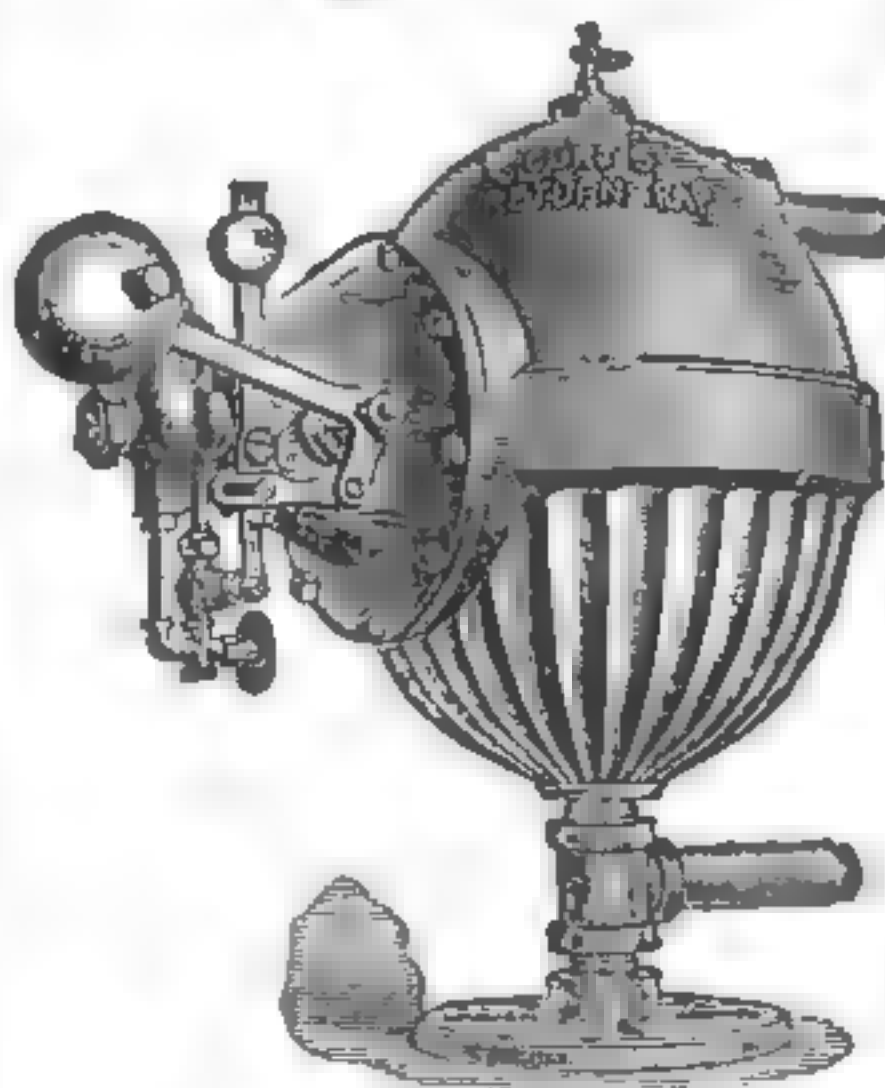
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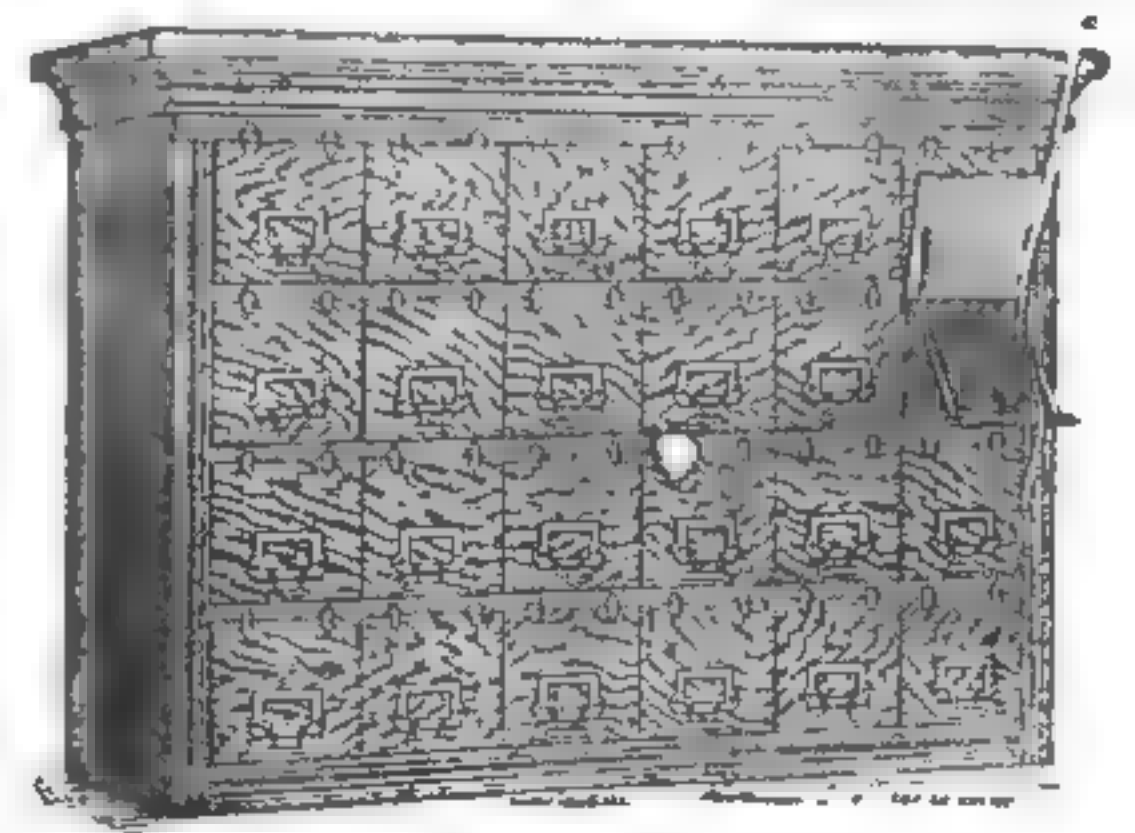
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NO. 8.



NO. 1.

# NOTES & NEWS

Shelby, N. C., men project a roller-mill.  
 H. Rhyne, Jasper, Ga., wants a grist-mill.  
 E. L. Brown & Son, Luray, Va., put in rolls.  
 The Halladay, Va., Roller Flour Mill enlarges.  
 Jones & Jones, Tennille, Ga., start a grist-mill.  
 C. H. Oliver, Hewlett's, Va., starts a grist-mill.  
 Weatherford, Tex., men project a grain-elevator.  
 D. R. Shores, Anthony, Tenn., builds a grist-mill.  
 Wood & Co., Covington, Tenn., enlarge flour-mill.  
 T. N. Jackson, Summit, Miss., projects a grist-mill.  
 C. H. Lewis, Elizabethton, Tenn., built a grist-mill.  
 Morehead Bros., Charleston, Tenn., started a grist-mill.  
 Amos Lotee, miller, North Bloomfield, N. Y., assigned.  
 J. R. Coffey & Co., Pangburn, Ark., improve grist-mill.  
 The Covington, Tenn., Mill and Elevator Co. enlarge mill.  
 The Belton, Tex., Roller Mill will move to Brownwood, Tex.  
 John Terrell and others, Grapevine, Tex., project a flour-mill.  
 Jacob Ellers, Hillsdale, Tenn., wants machinery for a corn-meal mill.  
 W. B. Ragsdale, Knoxville, Tenn., is building a 100-bbl. roller flour-mill.  
 Forman, Chenault & Co., Richmond, Ky., will rebuild their Bonanza flouring-mill.  
 N. Blevins and W. McKee, Aurora, Tenn., start a grist-mill; they want machinery.  
 Thompson & Hodge's flour-mill, Winchester, O., burned; loss \$2,000, with no insurance.  
 H. O. Hambaugh & Co., Peacher's Mills, Tenn., will build a 30,000-bushel grain-elevator.  
 E. H. & B. Watt, Bowling Green, Ky., have bought and will improve the Haw flouring mill.  
 Johnson City, Tenn., men project a 125-barrel roller flouring-mill; machinery will be wanted.  
 Gill & Forrest's roller flouring-mill, Hillsboro, N. D., burned; loss \$50,000, with full insurance.  
 E. R. Paynter, Georgetown, Del., is putting in rolls furnished by the Case Mfg. Co., Columbus, O.  
 The Henry Reckord Mfg. Co., Reckord, Md., increase flour-mill capacity; machinery is wanted.  
 The Case Mfg. Co., Columbus, O., have an order from C. Seely, Lush-ton, Neb., for 2 special purifiers.  
 John F. Blake, Canton, O., has placed an order with the Case Mfg. Co., Columbus, O., for 1 pair of rolls.  
 Hunter & Co.'s steam flouring-mill, near Columbia, Tenn., burned; loss \$14,000; insurance \$9,000; fire mysterious.  
 The Case Mfg. Co., Columbus, O., have an order from D. H. Harris, Bennett, Neb., for 2 additional pairs of rolls.  
 W. L. Tillman, Columbus, Ga., forms a \$100,000 stock company, to build a 300-barrel flouring and corn-meal mill.  
 The People's Milling Co.'s steam flouring-mill, Meaford, Ont., Can., burned Feb. 21; loss \$30,000; insurance \$15,000.  
 Es Mueller & Barry, St. Louis, Mo., have placed an order with the Case Mfg. Co., Columbus, O., for 8 pair of rolls.  
 A. Jones and others, Brady, Tex., have incorporated the Brady Mill & Gin Co., capital stock \$10,000, to build a grist-mill.  
 Frank Fisher's flouring-mill on the Mississinewa, near Wabash, Ind., burned; loss \$4,500; insurance \$1,500; fire incendiary.  
 Kuhn, Culver & Co., Audubon, Iowa, are putting in 2 additional pair of rolls furnished by the Case Mfg. Co., Columbus, O.  
 J. W. Bennett, Murfreesboro, Tenn., wants an outfit of machinery for a 75-barrel roller flouring-mill, to be built in the spring.

Cripps & Thomas, Philadelphia, Pa., build a flour-mill at Newcastle, Va.  
 F. W. Blackburn, Fort Smith, Ark., will build a 200-barrel roller flouring-mill in that place if the citizens will give him a suitable site.

Unitia, Tenn., men have formed the Leeper Flour Mill Co. They have bought and will remodel, enlarge and operate the Leeper flouring-mill.

The Case Mfg. Co., Columbus, O., have an order from Jos. Wagner & Co., San Francisco, Cal., for one No. 2 corn-meal aspirator and purifier.

E. Fairman, Mullin, Tex., builds a 50-barrel roller flouring-mill; he wants machinery.

The Case Mfg. Co., Columbus, O., have an order from Delmatis & De Late, Ash Creek, Minn., for the necessary rolls and other machinery for a full roller corn-meal mill on the Case system.

Wm. Rankin & Son, Rankin, Ky., are remodeling their mill to the full roller system and have placed their order for all necessary machinery and supplies with the Case Mfg. Co., Columbus, O.

The Wheelers, Gallatin, Tenn., will build a 150-barrel roller flouring-mill and a 100,000-bushel grain-elevator, at a cost of \$30,000. They are organizing as a stock company. Machinery is wanted.

The Case Mfg. Co., Columbus, O., have received the contract from Shriver Bros. & Rinehart, Junction City, Ohio, for all the necessary rolls, purifiers, flour-dressers, scalpers and other machinery for a full roller mill on the Case system.

Comer & Lewis, Birmingham, Ala., are erecting a full roller corn-meal mill, with a daily capacity of 1,200 bushels. They have placed their order with the Case Mfg. Co., Columbus, O., for all the necessary rolls and other machinery.

The Case Mfg. Co., Columbus, O., have received the contract of B. B. Comer, Anniston, Ala., for all the necessary rolls and special machinery for a full roller corn-meal mill on the Case system, with a capacity of 600 bushels in 24 hours, to be erected at Eufala, Ala.

Commissioner Betton, of the Kansas bureau of labor and industrial statistics, has compiled for his forthcoming annual report some very valuable statistics regarding the milling industry of the state, which he has treated separately, the commissioner regarding this as the most important branch of local industries. 224 mills, with a capital of \$6,401,552, make reports. These mills use 1,381 sets of rolls and 261 pairs of buhrs in the manufacture of flour. Only 15.9 per cent. of the product was ground by the buhrs, and this chiefly in the form of corn-meal. The commissioner regards buhr flour a thing of the past so far as Kansas is concerned. Kansas has many first-class mills, fully equipped with all the latest inventions in the way of machinery, and more are in process of construction. One mill reports an invested capital of \$165,000, eight range from \$100,000 to \$150,000, nine from \$75,000 to \$100,000, seven from \$30,000 to \$75,000, fifty-two from \$25,000 to \$50,000, and the rest represent smaller amounts. The business of flour-making is increasing in the larger cities of the state, and Kansas flour already has a well established reputation in Europe. Nearly 3,000,000 barrels were produced during the year ending June 30, 1889. The average cost of grain was about 72 cents, and some 15,000,000 bushels were ground.

## CATARRH.

CATARRHAL DEAFNESS—HAY FEVER.  
 A NEW HOME TREATMENT.

Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N. B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King street, Toronto, Canada.—*Christian Advocate.*

Sufferers from Catarrhal troubles should carefully read the above.



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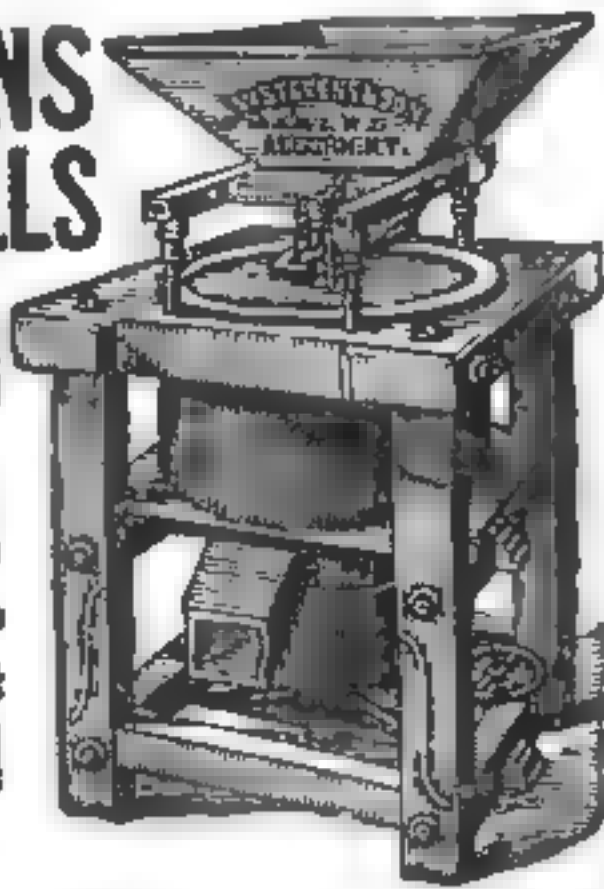
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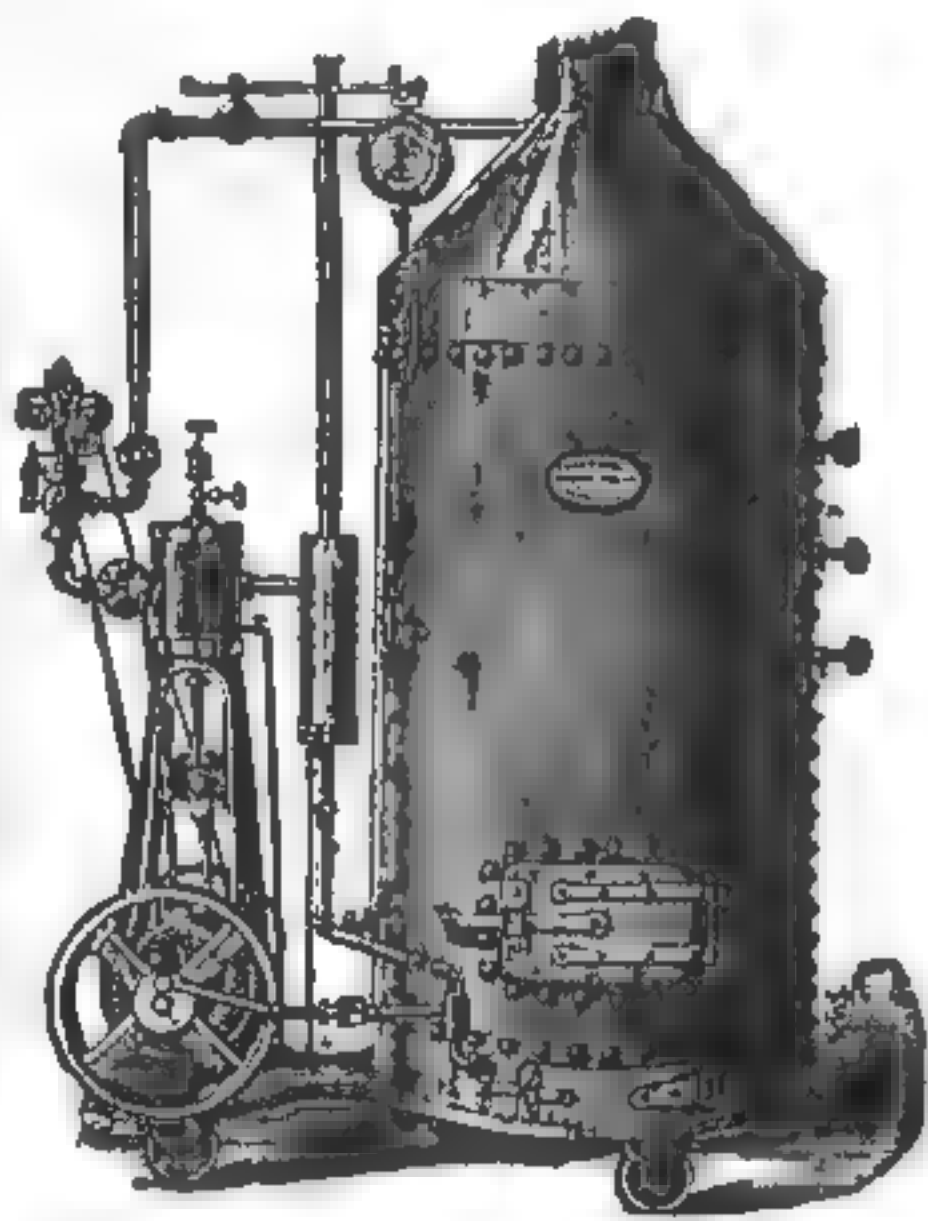
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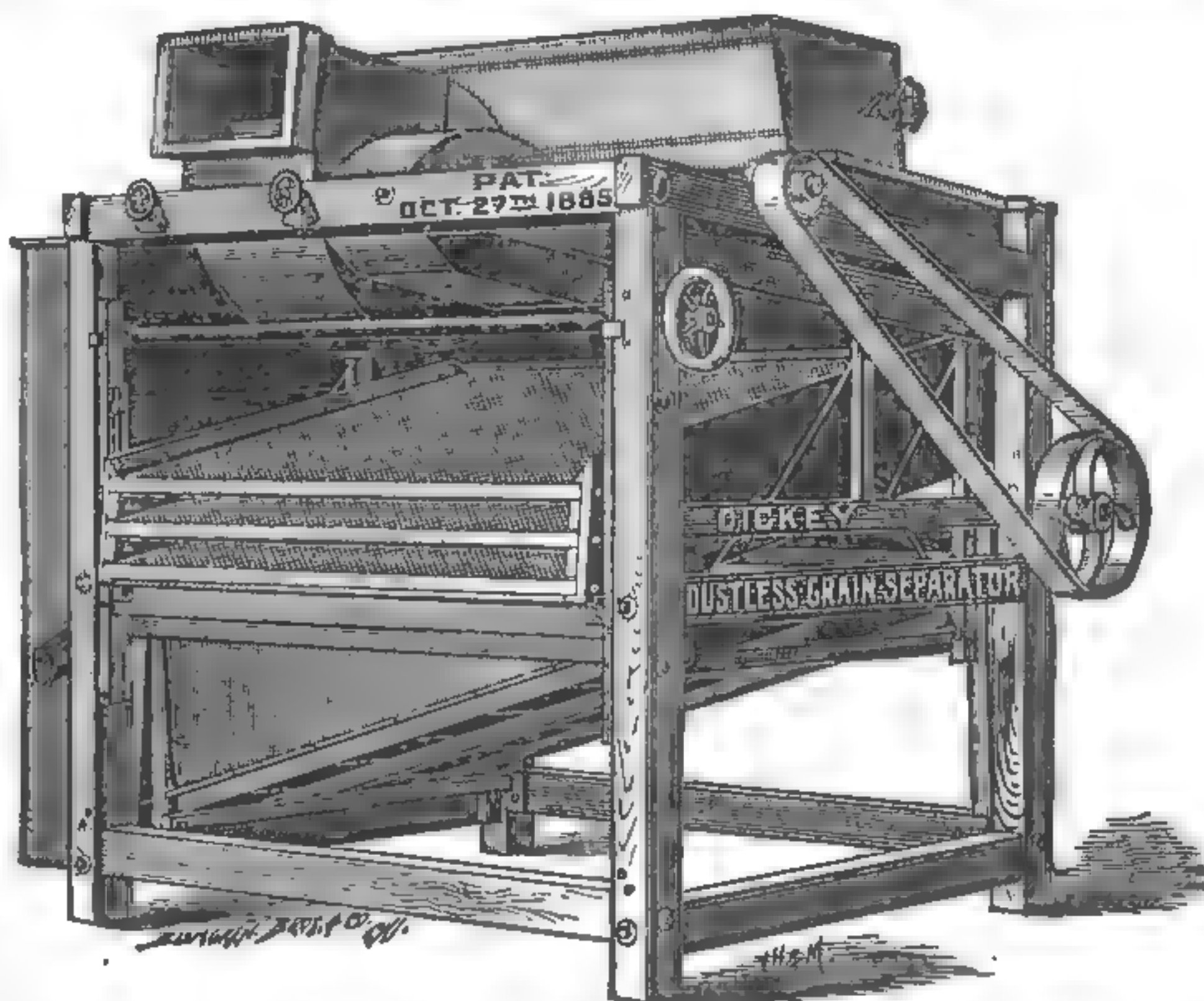
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We claim for it Superiority over everything of the kind made, in simpleness, durability, saving of power, capacity and cost of construction. Its height will accommodate any number of spouts from different points, without moving machine. They have a capacity from 700 to 1,500 bushels per hour. We also control exclusively the manufacture of the celebrated Dickey Giant, End and Side Shake, Warehouse Mills, that have attained such a world-wide reputation. Sent on approval to any reliable party. For full particulars address,

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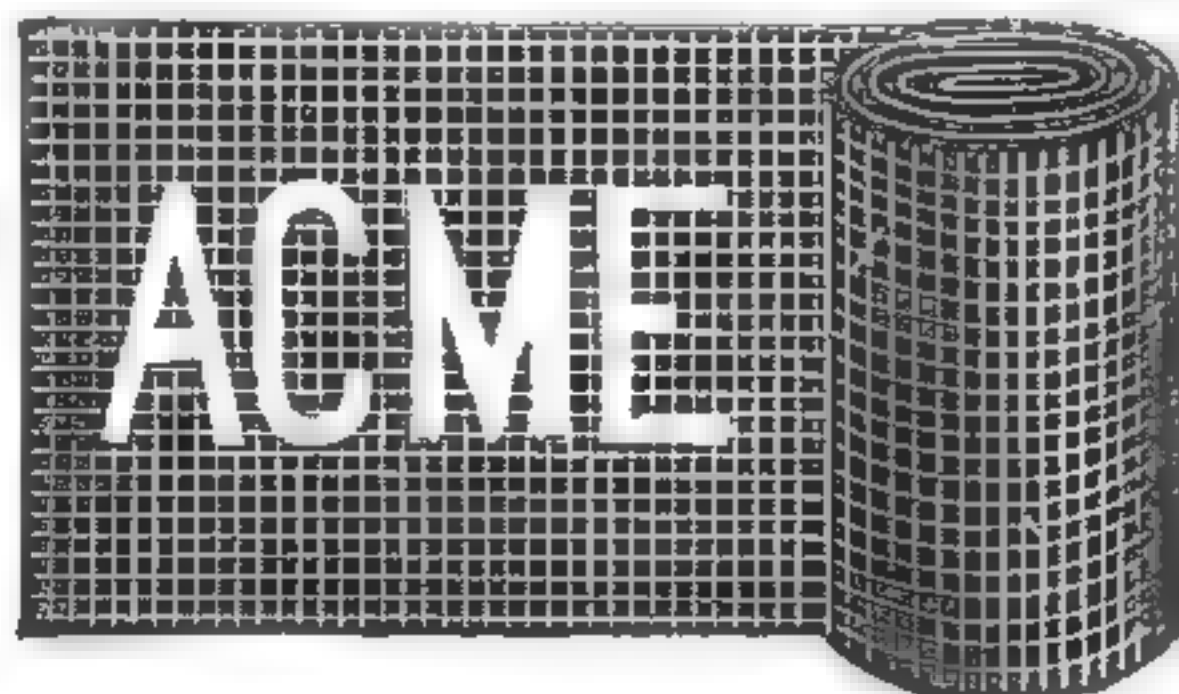
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## EUROPEAN ECHOES.

PORTUGAL has reduced the import duty on foreign wheat to 16 reis per kilogramme.

SAYS the London "Millers' Gazette" of February 17: From India the shipments were nil last week, while in the corresponding week last year 60,000 quarters were shipped; the total since April 1 is therefore now 2,970,000 quarters, against 3,961,000 quarters last year. With the prospect of another relatively short crop this year, India will probably remain for another season a comparatively unimportant contributor to the world's wheat supply. From Australia about 215,000 quarters are now afloat, but the La Plata shipments have hardly yet commenced to be of any importance; a fair business has been done during the past week in London for forward shipment, partly for Continental account, at 31s. 3d. to 32s. 3d. per quarter.

### POINTS IN MILLING.

GRADUALLY American milling is taking on the features and finish of something that may be called an exact science. Wherever I go, I find these features becoming more and more pronounced. Buhr mills all turn out the same grades of flour from the same grades of wheat. Short-system roller millers in one State produce flours from certain grains that can hardly be distinguished from flours from the same grains made by roller millers on the short system in other States. Long-system roller plants 1,000 or 2,000 miles apart produce from equal grains equal flours in every essential. Everywhere there is proof that the millers on each system know what they are doing, that they have a consistent plan, and that they follow it.

SPRING wheat ground in the West duplicates the flour made from spring wheat in the East. Winter wheat ground in St. Louis duplicates that ground in New York. Grinding has been developed on well defined lines, so that American flour has won the distinction of being the most homogeneous to be had.

EVEN the boasted Hungarian high-grade flours from the famous Budapest mills vary far more in color and general quality than do the American high-grade flours. Such scientists as Professor Jago and Professor Thoms, in Great Britain, commend the evenness, the homogeneity and the reliability of the American flours.

Two causes have led to the development and the symmetry of American milling: 1. There is a great demand for high-grade and good flour. 2. There is constant improvement in milling machinery.

THE great brands of spring and winter flours have set the standard for all the smaller mills to follow. The perfected machinery has enabled the millers to follow successfully. Systems have been adopted, amended, rejected or altered. Bad features have been eliminated wherever elimination was possible, or good and improved features have been added to carry the work over the rough spots. Experiment has been the order of the day, and now, when the observer studies milling in the United States, he knows what he is likely to find in any given line.

It has long been the accepted theory that "milling is not, and can not, from the nature of things, be an exact science." The holders of that theory, in these days when 500 specimens of flour, from 500 different mills, running with similar equipment on the same system, and using similar wheat, are all so much alike that the most expert examiner could not detect the difference between the two most dissimilar flours in the lots, will probably remodel their ideas after looking over the achievements of the past ten years.

EXACTNESS is seen in the agreement concerning wheat-cleaning, break surface and style or corrugations in rolls,

purification and every other really important process. Exactness is seen in the growing similarity of American milling-machines. Outside of the few great patent-protected machines there are scores of machines to do the work at every step, and these machines are generally excellent in all essential features. With all the growing exactness of work and practice has come a decrease in contentions about theories, and that is probably the most convincing proof that American flour-makers have finally reduced their work to a compact, consistent, well ordered and well understood basis.

### THE AUSTRALIAN HARVEST.

The following letters to Beerbohm regarding the wheat crop in South Australia give a gloomier view of the result.

Adelaide, Jan. 6.—Reaping in the more northern areas is now completed, and in the middle north and southern districts it is in full swing. Farmers have kept on reaping and bringing in the spoil steadily to the heap without stopping to clean up, except for purposes of wages and immediate requirements. The time this first process has occupied surely is significant of the enormous growth which has had to be handled and got in. As winnowing progresses, the ravage of the fungoid disease and the mischief wrought by the rapid dissemination of the spores tell too plain a tale, and from the western lands, especially those abutting on the shores of Spencer's Gulf, the reports of the diminished yield and the shriveled state of the grain are distressing, representing, as they do, the blasting of bright harvest prospects which a few weeks ago seemed assured. The districts which, as far as yet known, have suffered most are the western lands of Yorke's Peninsula, especially Maitland, Tickera, Tipara and northwards as far as Ninnes and Wiltunga. Belalie also has suffered heavily, while the intervening hundred of Caltowie shows a good and unusual average. To the north and east of there the yield has been as a rule very heavy, far beyond the records of former years, and with the much larger area covered than in the more southern hundreds the general average will be sustained in a very marked and decisive manner.

Saddleworth, Jan. 1.—Reaping is progressing, and if we ask the result we are told, "Wait for the winnower." It is feared that the tale will be very far from encouraging.

Port Germain, Jan. 3.—Wheat is arriving steadily, but the effect of red rust is being seriously felt, the anticipated yield being only about half.

### WHEAT IN OREGON.

Says the Portland "Oregonian": There is enough wheat held on the Willamette to load all the ships headed for Portland. There is not much more to come from eastern Oregon and Washington. The crop was overestimated in that section and was only about two-thirds that of the year before. There has been a large increase of population in that section, and the mills will need much more wheat than usual for grinding. If much more is shipped out of that country, they will have to buy wheat or flour from the outside. The valley crop was underestimated, and there are 2,000,000 bushels yet in the valley, which will load all the ships in sight now.

### A NEW METHOD OF TREATING DISEASE.

#### HOSPITAL REMEDIES.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance the treatment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians, celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, has ruined more stomachs than alcohol. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.

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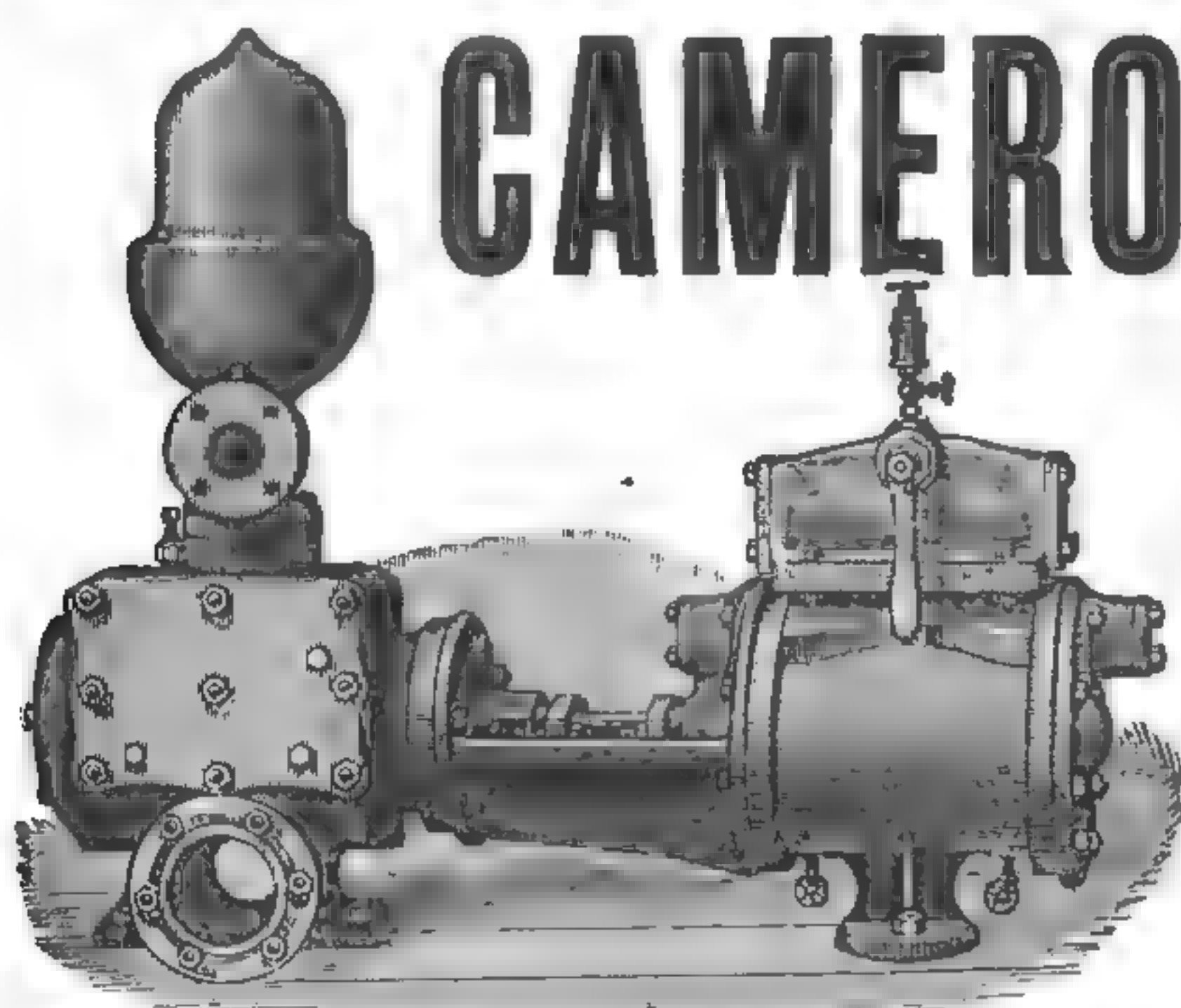
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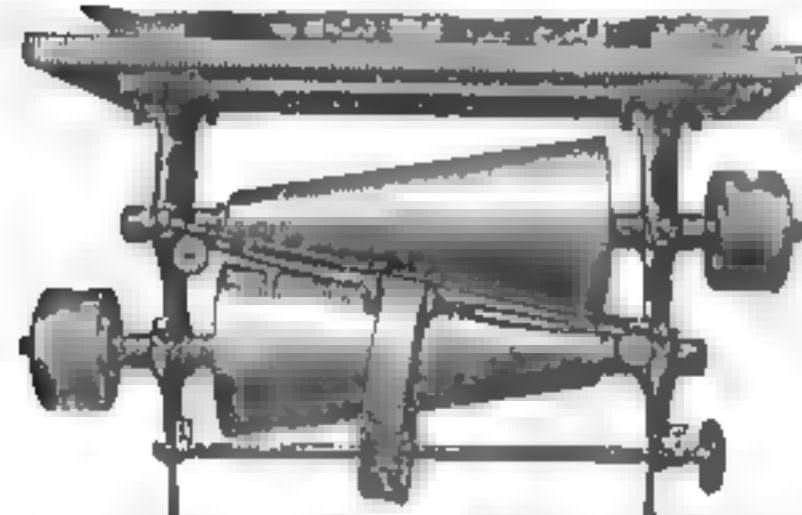
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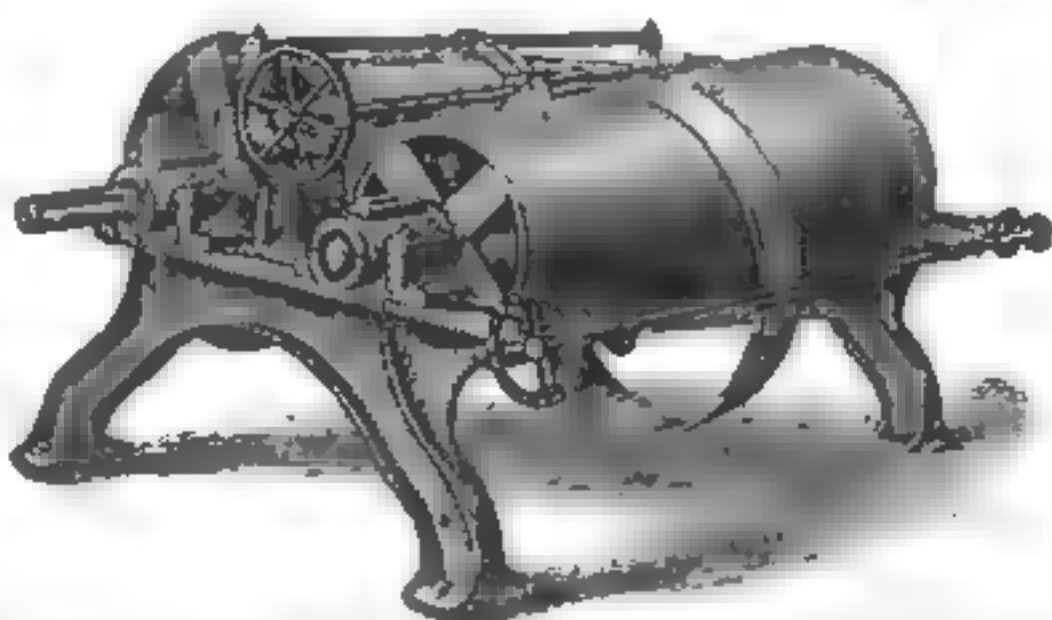
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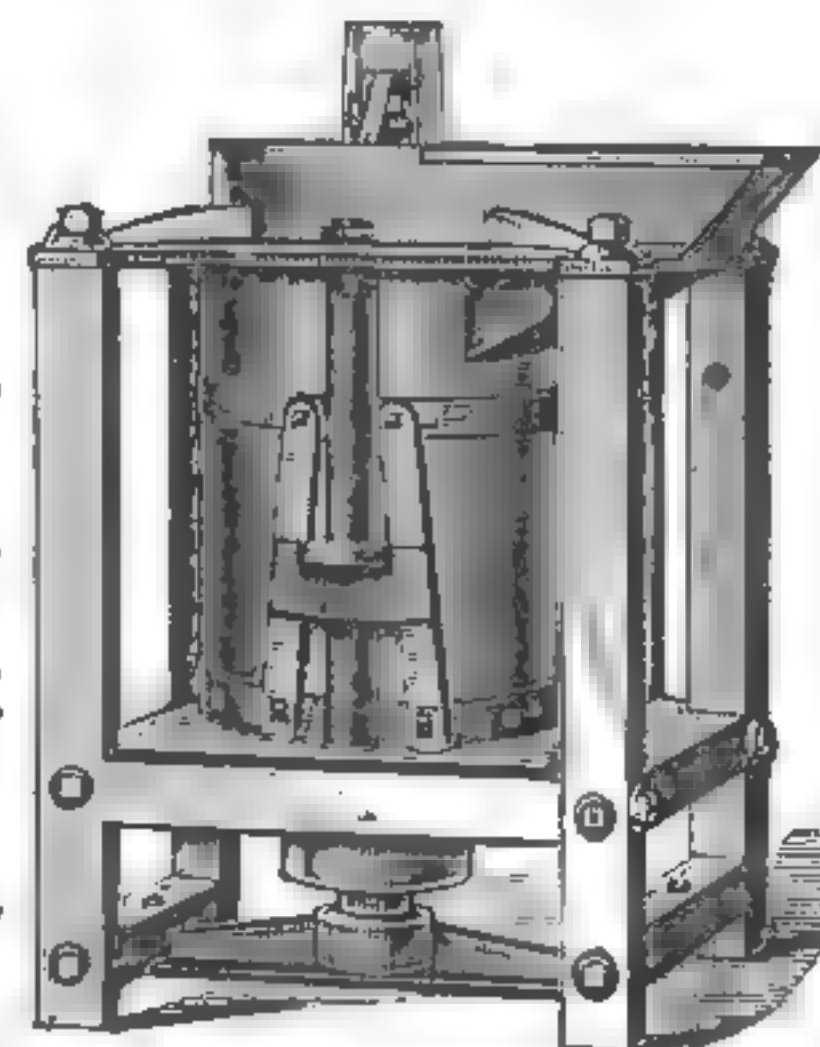
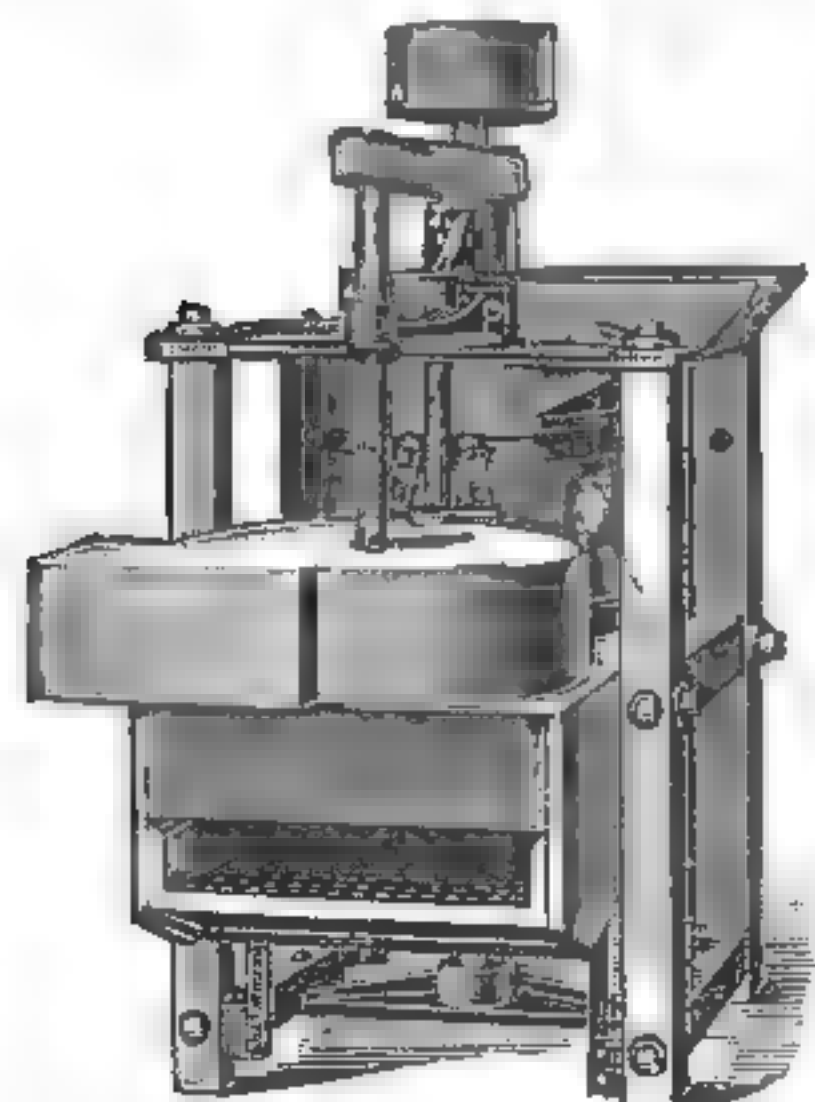
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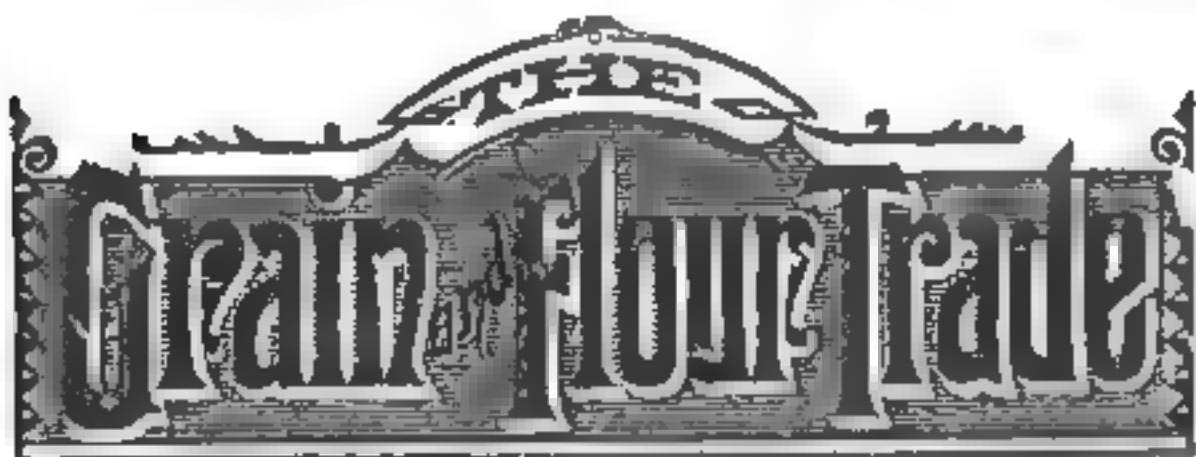
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NAME THIS PAPER.



OFFICE OF THE MILLING WORLD,  
BUFFALO, N. Y., March 8, 1890.

Friday of last week was a day of reaction all around on realizing by longs. March wheat started in at 86½c., against 97½c. a year ago. Atlantic port receipts were 44,971, exports 116,516, and options 5,500,000 bushels. March corn closed at 35½c., against 44½c. a year ago, with receipts 637,037, export 269,453, and options 1,260,000 bushels. March oats closed at 28c., against 30½c. a year ago, with receipts 167,184, exports 138,041, and options 1,050,000 bushels. Wheat flour was active and somewhat firmer, but some mills raised their limits and checked sales. March opened with New York stocks of flour as follows: Winter 124,000 barrels, spring 106,500 barrels, total 230,500 barrels, against 264,300 barrels a year ago. Receipts included 3,276 sacks and 19,340 barrels, and exports 54,517 sacks and 22,712 barrels. The minor lines were featureless.

Saturday was day of less activity, but more steadiness, with the week's improvement well sustained generally. March wheat closed at 85½c., with receipts 28,802, exports 4,777, and options 2,000,000 bushels. March corn closed at 35½c., with receipts 575,295, exports 492,693, and options 440,000 bushels. March oats closed at 28c., with receipts 164,200, exports 35,278, and options 130,000 bushels. Wheat flour ruled quiet at the 10c. advance of the week, but steady, with buyers holding off after the free purchases of the week, and looking over the market for lines at the late advanced prices in case the wheat market takes another upward turn. Receipts were 5,843 sacks and 21,632 barrels, and exports 16,252 sacks and 9,015 barrels. The minor lines were featureless.

Monday brought higher and excited markets, led by wheat, on higher receipts, shorts covering and a general bullish feeling. March wheat closed up at 87½c., with receipts 45,552, exports 121,409, and options 8,560,000 bushels. In Chicago Hutchinson sold 1,500,000 bushels of long wheat which he had bought on Friday and Saturday. March corn closed at 35½c., with receipts 397,026, exports 230,059, and options 1,400,000 bushels. It was reported that 1,000,000 bushels of corn have been sold in New York for special shipments during March. This helped the strength in corn. March oats closed at 28½c., with receipts 161,835, exports 38,899, and options 1,650,000 bushels. Wheat flour was stronger and more active, with cables 1c. higher. Home trade was active. Receipts included 6,996 sacks and 31,828 barrels, and exports 7,309 sacks and 16,398 barrels. The minor lines were stronger generally. The visible supply in the United States and Canada was as follows:

	1890.	1889.	1888.
Wheat.....	28,998,383	32,000,059	37,515,931
Corn.....	14,442,363	15,820,084	9,141,652
Oats.....	5,080,339	7,918,963	4,750,851
Rye.....	1,613,204	1,669,596	382,397
Barley.....	1,708,735	1,832,562	2,409,351

Tuesday was a day of heavy trading, great activity, excitement and irregularity, netting a slight decrease in the strength of wheat. London cables were 6c. up, and Liverpool was unchanged. March wheat closed at 87½c., with receipts 41,995, exports 120,892, and options 23,100,000 bushels, of which total the May option included 12,800,000 bushels. March corn closed at 35½c., with receipts 569,871, exports 451,134, and options 1,440,000 bushels. March oats closed at 28½c., with receipts 143,665, exports 50,319, and options 155,000 bushels. Wheat flour was firmly held on the higher limits of millers, which were 20@25c. above recent bottom prices. Receipts included 8,471 sacks and 41,240 barrels, and exports 15,298 sacks and 18,366 barrels. The minor lines were featureless.

The following shows the amount of wheat and flour, together with the amount of corn, on passage to United Kingdom, for ports of call or direct ports for the weeks mentioned:

	1890.	1889.
Wheat and flour, qrs....	Mch. 4. 2,460,000	Mch. 5. 2,078,000
Corn, qrs.....	803,000	364,000

The following shows the amount of wheat and corn on passage to the Continent for the past week and for the same week last year:

	1890.	1889.
Wheat, qrs.....	Mch. 4. 405,000	Mch. 5. 454,000
Corn, qrs.....	534,000	184,000

Shipments India wheat to U. K. .... 5,000  
do do Continent. . . . . 22,500

The imports into the United Kingdom for the past week and for the same weeks in previous years were as follows:

	1890.	1889.	1888.
Wheat, qrs .....	Mch. 5. 287,000	Feb. 25. 127,000	Mch. 5. 287,000
Corn, qrs.....	140,000	221,000	142,000
Flour, bbls.....	104,000	165,000	104,000

Wednesday brought lower wheat markets on pounding and realizing. March wheat closed at 86½c., with receipts 42,875, exports 63,734, and options 6,500,000 bushels. The reports of the day included bull stories of decreased Russian and Indian wheat stocks and of damage done by the severe cold to wheat in the winter belt. March corn closed at 35½c., with receipts 379,145, exports 255,205, and options 1,500,000 bushels. March oats closed at 28½c., with receipts 84,021, exports 141,723, and options 250,000 bushels. Buckwheat grain was 35@38c. Rye grain was firmer at 58c. for State ungraded afloat in New York. Barley was barely steady at 46@50c. for two-rowed State, 53@56c. for 6-rowed State, and 56@65c. for ungraded Canada. Malt was in small sales at 60@70c. for 2-rowed State, 70@75c. for 6-rowed, 75@85c. for country-made Canada, and 80@87c. for city made Canada. Mill-feed was quiet and steady at 65@67½c. for 40-lb. and 60-lb.; 62½@65c. for 80-lb.; 70c. for flat, and 75c. for rye.

Wheat flour was stagnant, the trade having filled up at the 10-cent advance and gone out of the market. They refused to answer to the northwestern advance of 20@26c. over bottom prices. Receipts included 5,559 sacks and 55,243 barrels, and exports 13,000 sacks and 6,297 barrels. Spot sales were 16,000 barrels. The break in wheat tended to unsettle flour, and the total advance from bottom prices did not average more than 10c. The quotations were:

SPRING FLOUR.		
	Sacks.	Barrels.
No grade.....	\$1.25@1.40	\$....@....
Fine.....	1.40@1.70	1.60@2.00
Superfine.....	1.86@2.10	2.10@2.15
Extra No. 2.....	2.15@2.50	2.40@2.85
Extra No. 1.....	2.85@3.25	3.60@3.65
Clear .....	3.25@3.35	3.60@3.75
Straight.....	3.75@4.15	4.12@4.60
Patent .....	4.35@4.75	4.95@5.00

WINTER FLOUR.		
	Sacks.	Barrels.
No grade.....	\$1.35@1.70	\$....@....
Fine.....	1.85@2.00	2.00@2.15
Superfine.....	1.85@2.15	2.25@2.50
Extra No. 2.....	2.50@2.85	2.00@2.40
Extra No. 1.....	2.75@3.40	2.85@3.65
Clear .....	3.10@3.50	3.75@4.10
Straight.....	3.65@3.90	4.15@4.25
Patent .....	3.95@4.20	4.55@4.85

CITY MILLS.		
W. I. grades.....		4.30@4.35
Low grades.....		2.30@2.40
Patents.....		4.65@5.20

Rye flour was dull at \$2.80@3.00. Buckwheat flour was easy at \$1.25@1.40. Corn products were active at the following quotations: Western and Southern in barrels \$2.25@2.50; Brandywine \$2.55; coarse, in bags, 70@74c.; white and yellow fine 92@97c.; brewers' \$1.02.

Thursday brought less activity in the markets. March wheat closed at 86½c., with receipts 8,800, exports 9,500, spot sales 72,000, and options 2,600,000 bushels. March corn closed at 35½c., with receipts 45,000, exports 291,568, spot sales 173,000, and options 840,000 bushels. March oats closed at 29c., with receipts 69,000, spot sales 152,000, and options 170,000 bushels. Wheat flour was weaker and less active, with

receipts 11,132 packages and sales 19,800 barrels, including the following: Low extras \$2.15@2.65; city mills \$4.30@4.50; city mills patents \$4.65@5.25; winter wheat low grades \$2.15@2.65; fair to fancy \$2.85@4.45; patents \$4.15@4.90; Minnesota clear \$3.25@4.15; Minnesota straights \$3.75@4.60; Minnesota patents \$4.35@5.10; Minnesota rye mixtures \$3.25@3.75; superfine \$2.05@2.60. All the minor lines were featureless and unchanged.

### BUFFALO MARKETS.

WHEAT—The market was rather quiet here to-day. A few thousand bushels of No. 1 hard spring wheat were sold at 90½c., and some No. 1 Northern at 88½c. No. 2 Northern is quotable at 85c. Some No. 2 red winter was sold to arrive 83½c., but spot is quotable at 82½@83c. No. 3 white is quoted at 79½c. CORN—The feeling is steady. No. 3 yellow was sold to-day at 33½c. and No. 3 mixed is quoted at 32½@33½c., and No. 4 do at 30½@31½c., according to color. OATS—No. 2 white oats sold at 26½@27c., No. 2 mixed are held at 25½@26c., though some were sold at 25c. RYE—There is no change in prices. Quotations remain at 51c for No. 2. BARLEY—There is more inquiry and less disposition to force sales. No. 1 Canada is quoted at 65@67c., No. 2 at 58@60c., No. 3 at 52@54c., extra No. 3 at 55c., and Western at 40@48c. OATMEAL—Akron, \$6.00; Western, \$5.75 per bbl.; rolled oats, in cases, 72 lbs., \$3.25. CORNMEAL—Coarse, 80@85c.; fine, 85@90c.; granulated, \$1.50 per cwt. MILLFEED—City-ground coarse winter, \$13.50@14.00 per ton; fine do. \$14.50@15.50; finished winter middlings, \$15.00@15.50; coarse spring do, \$13.00@13.50.

### FLOUR MARKET.

Spring Wheat.		Winter Wheat.	
Patents.....	\$5.50@6.00	Patents .....	\$4.75@5.25
Straight.....	4.50@5.00	Straight.....	4.25@4.75
Bakers.....	3.50@4.00	Clear .....	3.75@4.25
Red Dog.....	2.25@2.75	Low grades .....	2.50@3.00

Retail prices 50c per bbl above these quotations. Buckwheat flour \$1.40@1.75 per 100 100 lbs.

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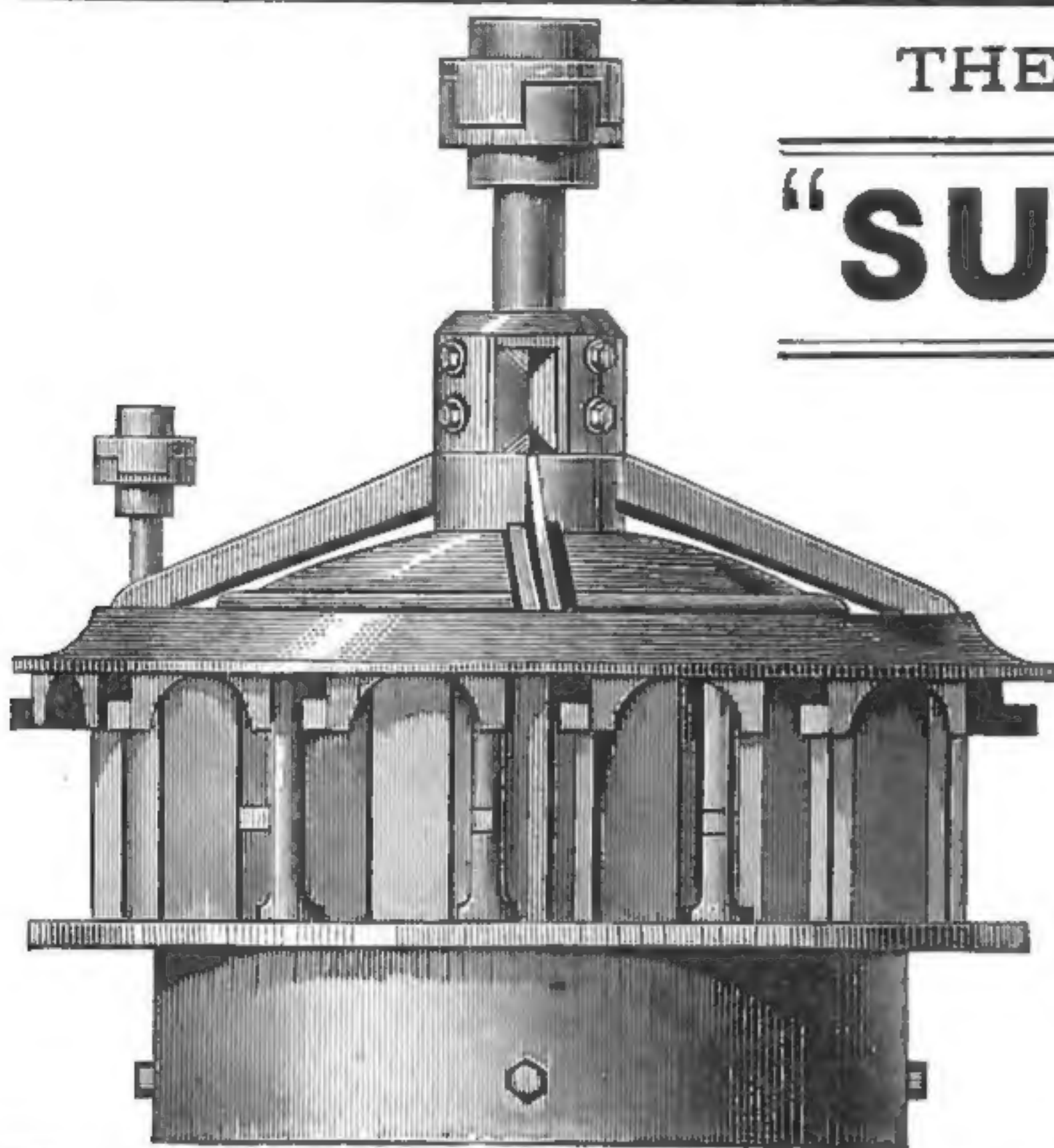
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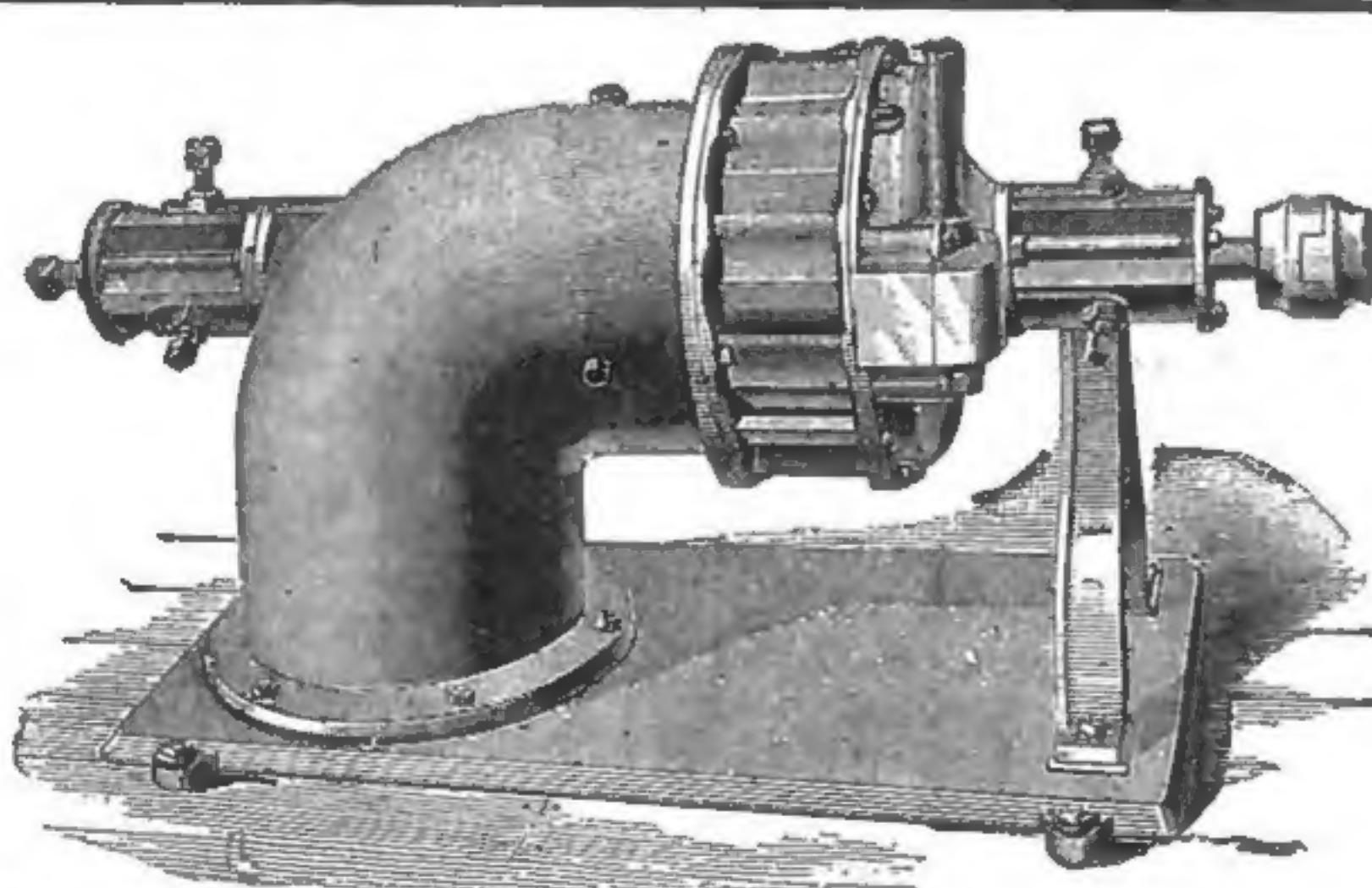
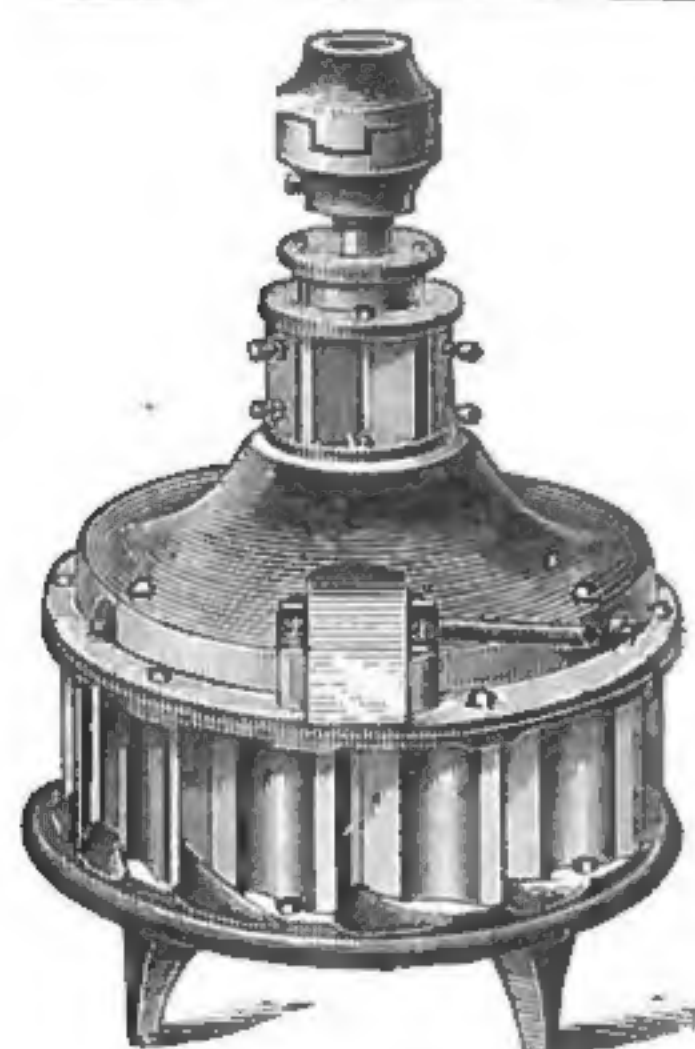
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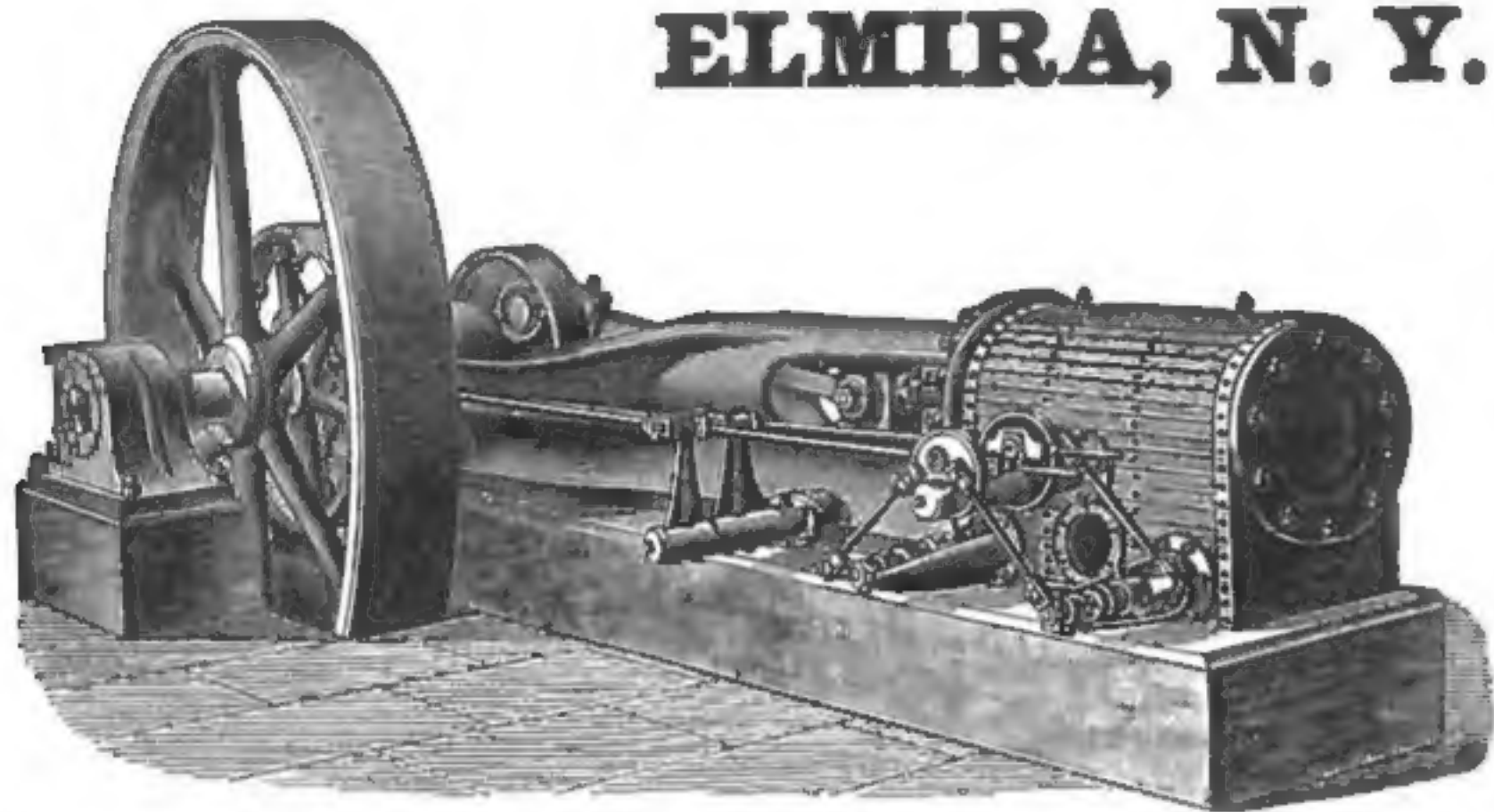
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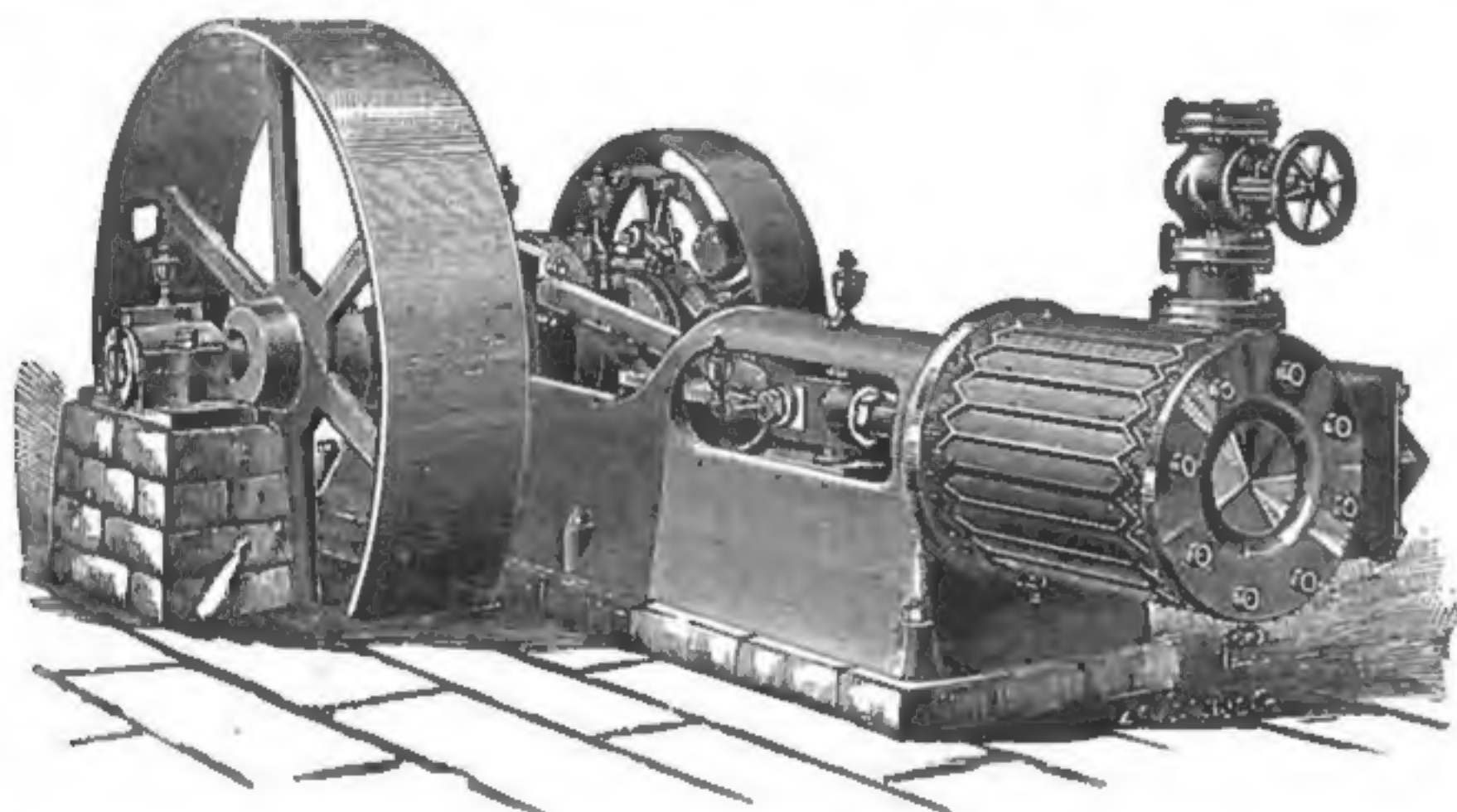
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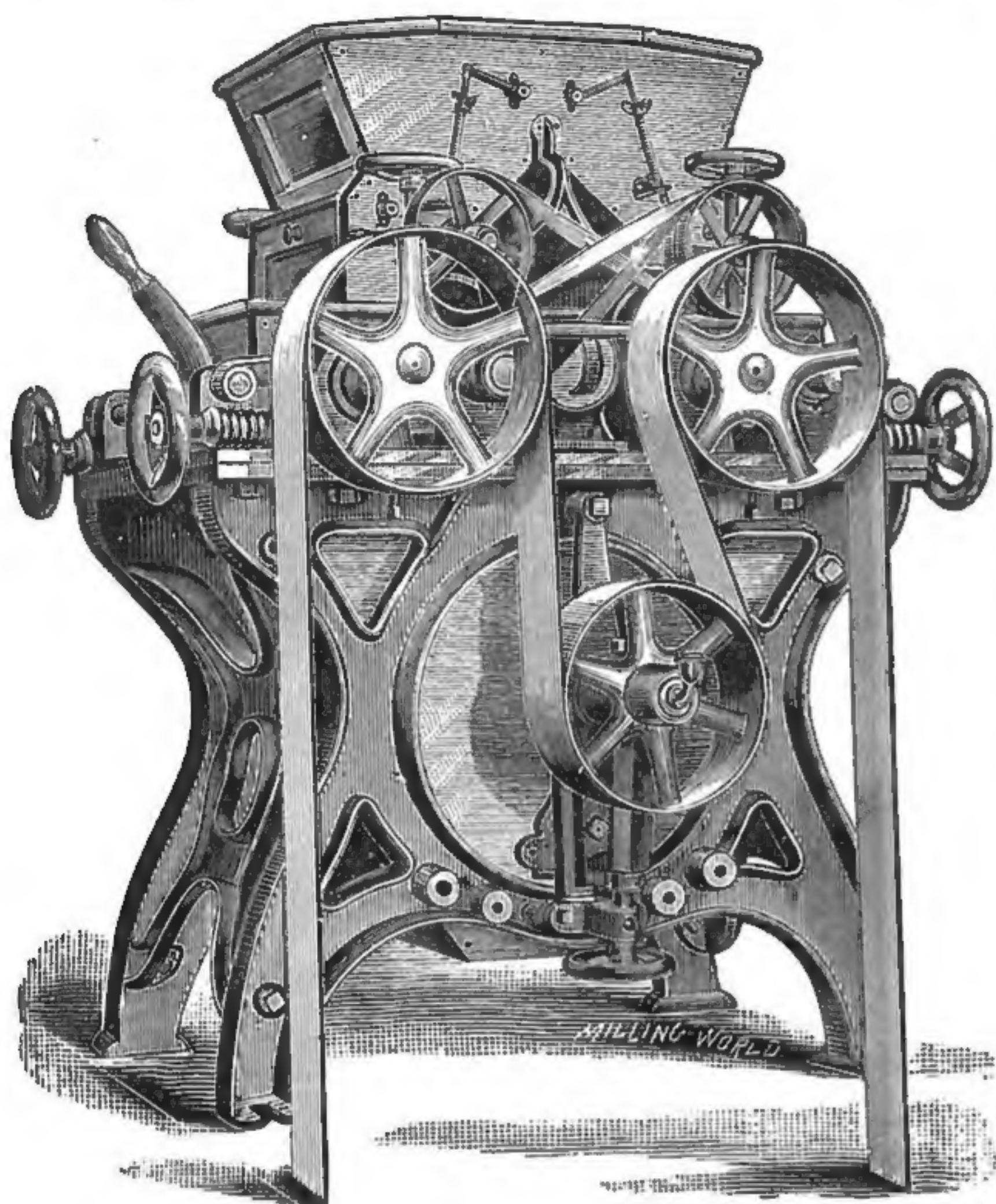


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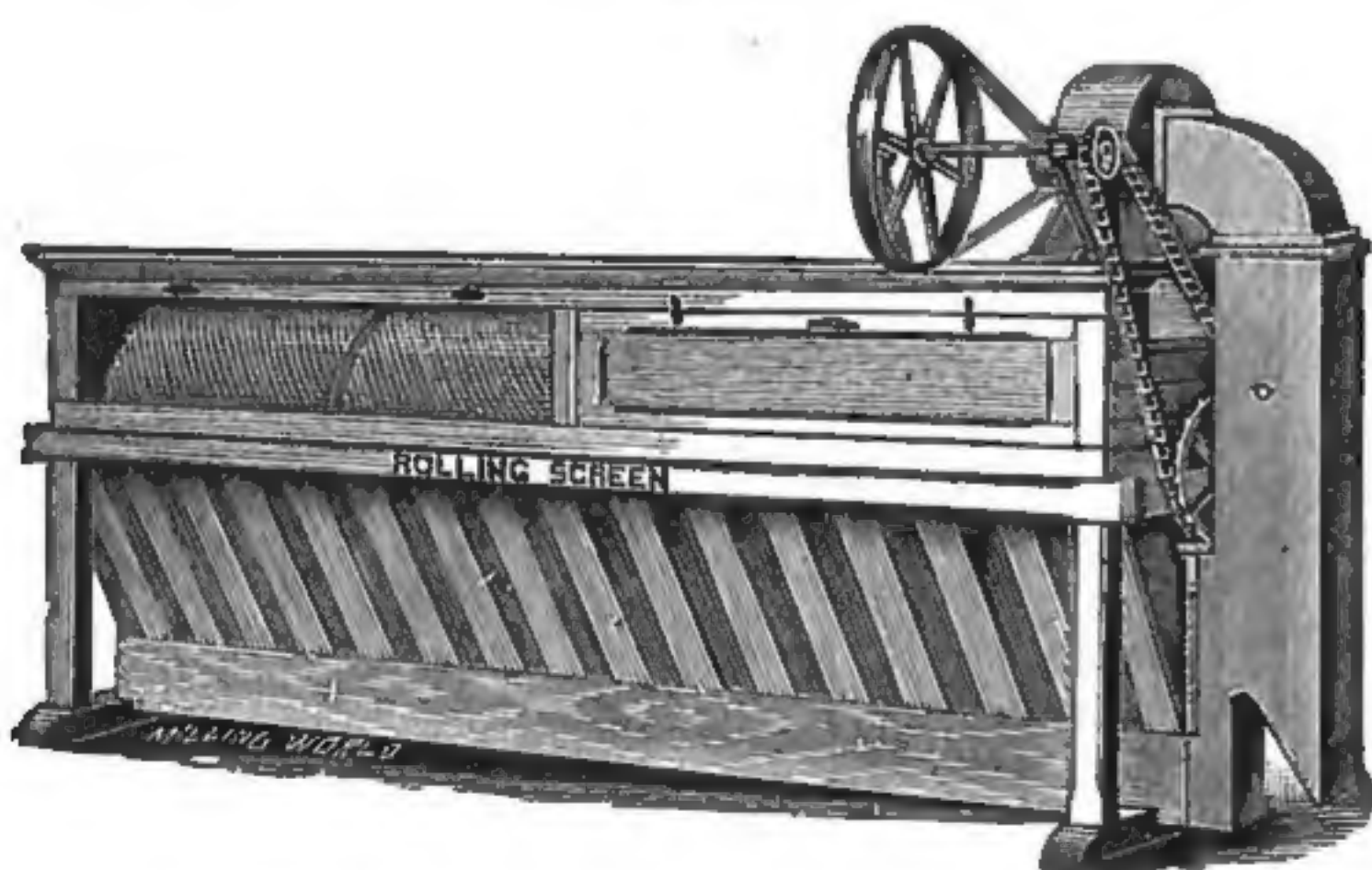
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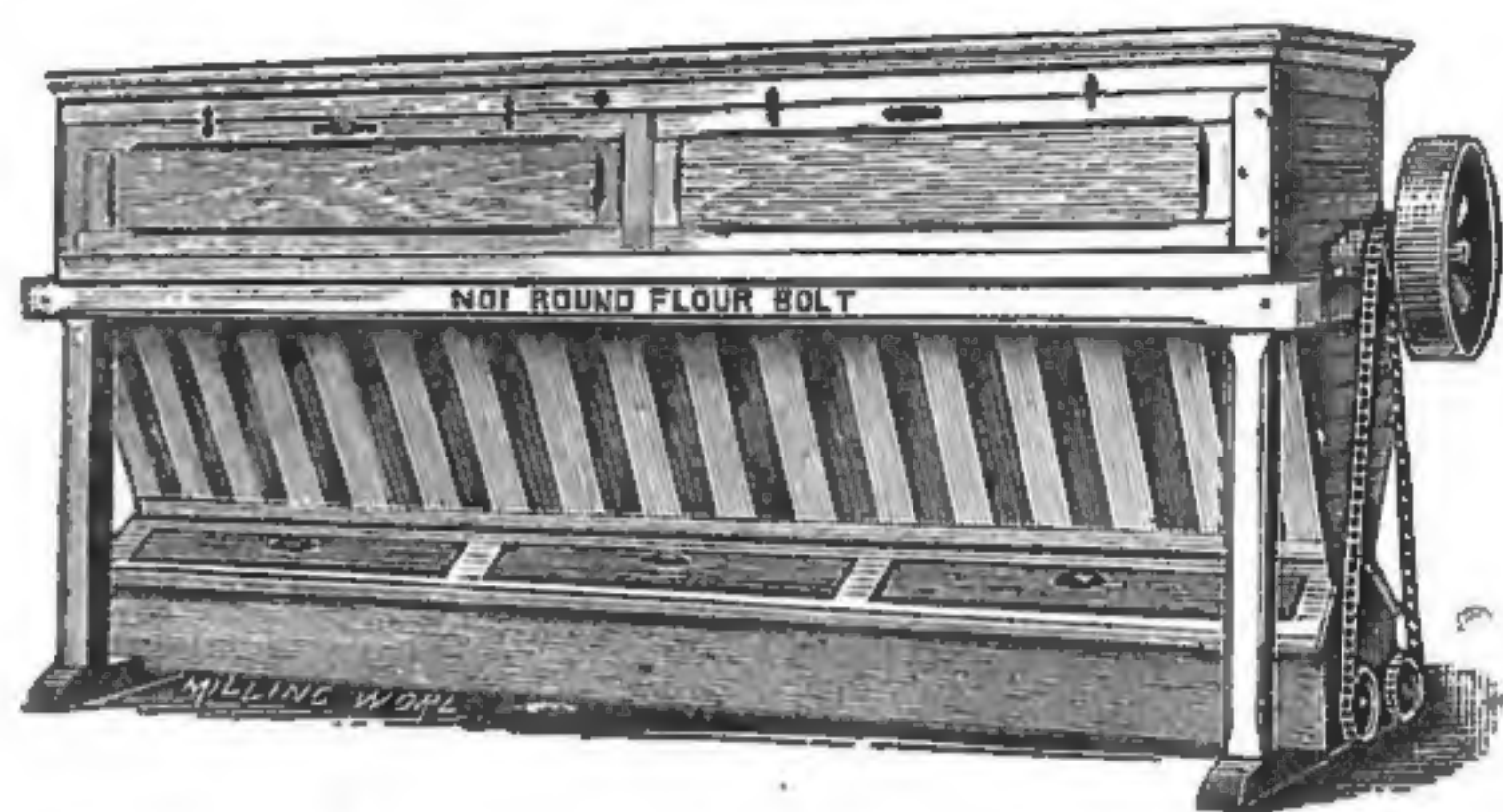
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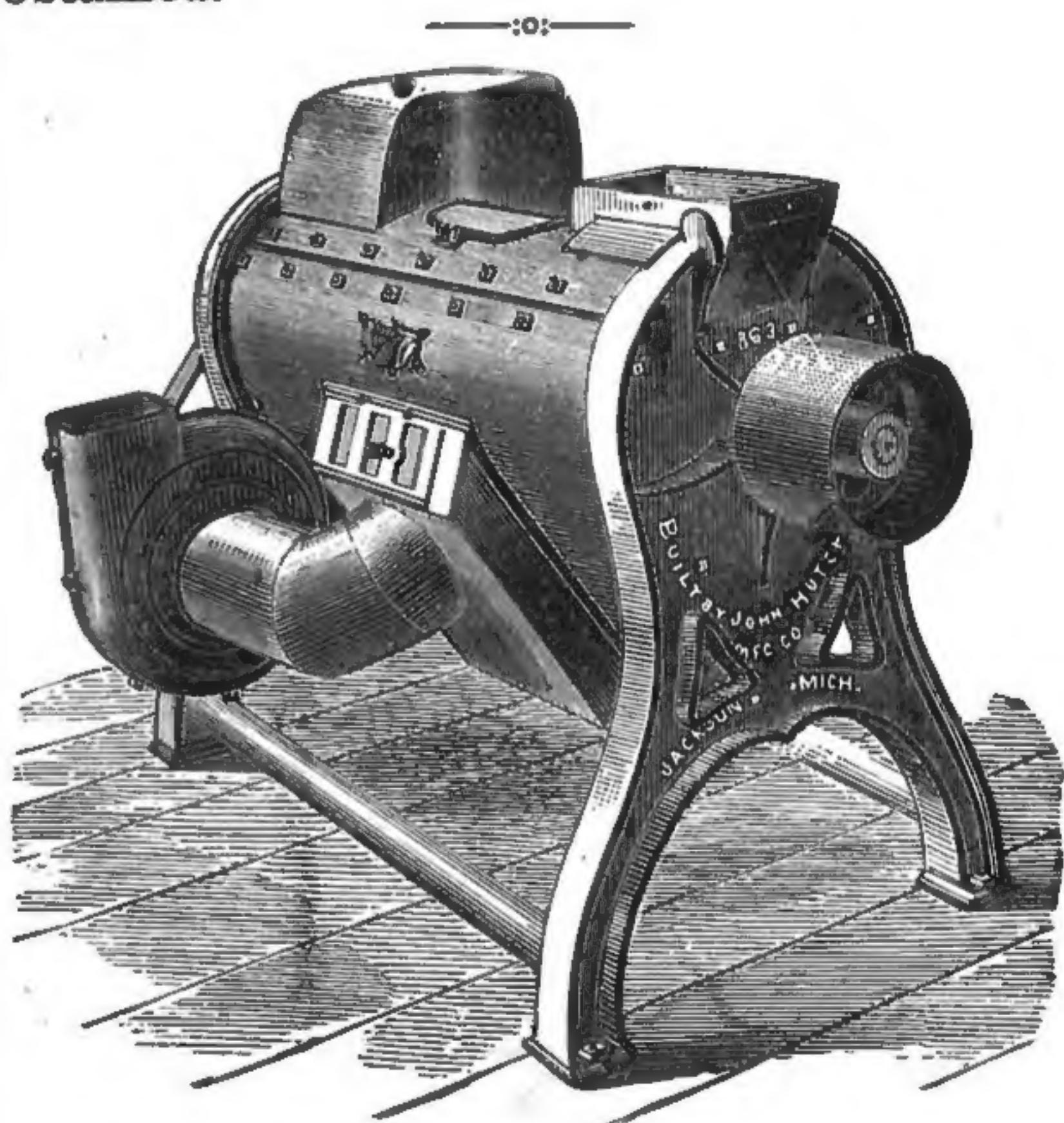


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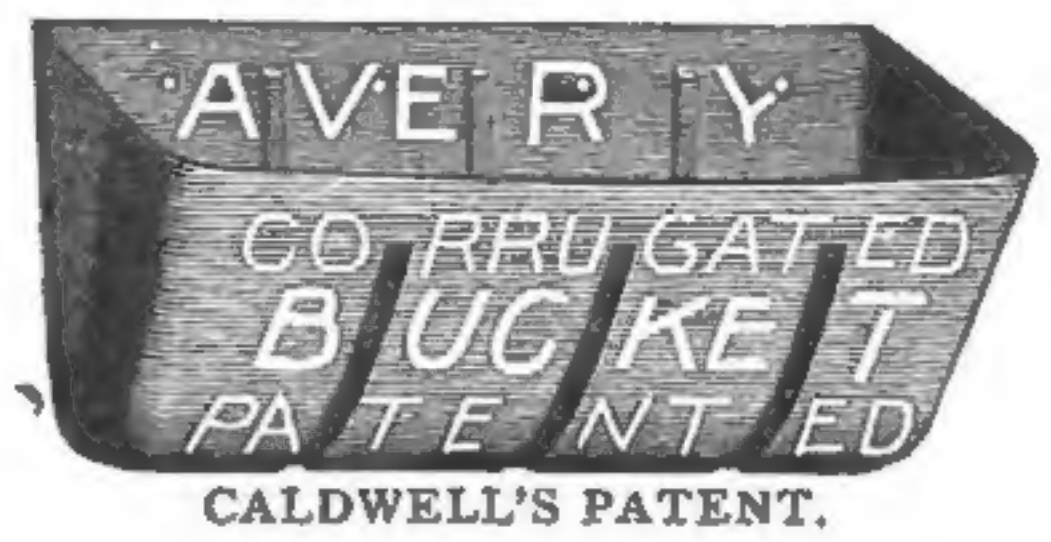
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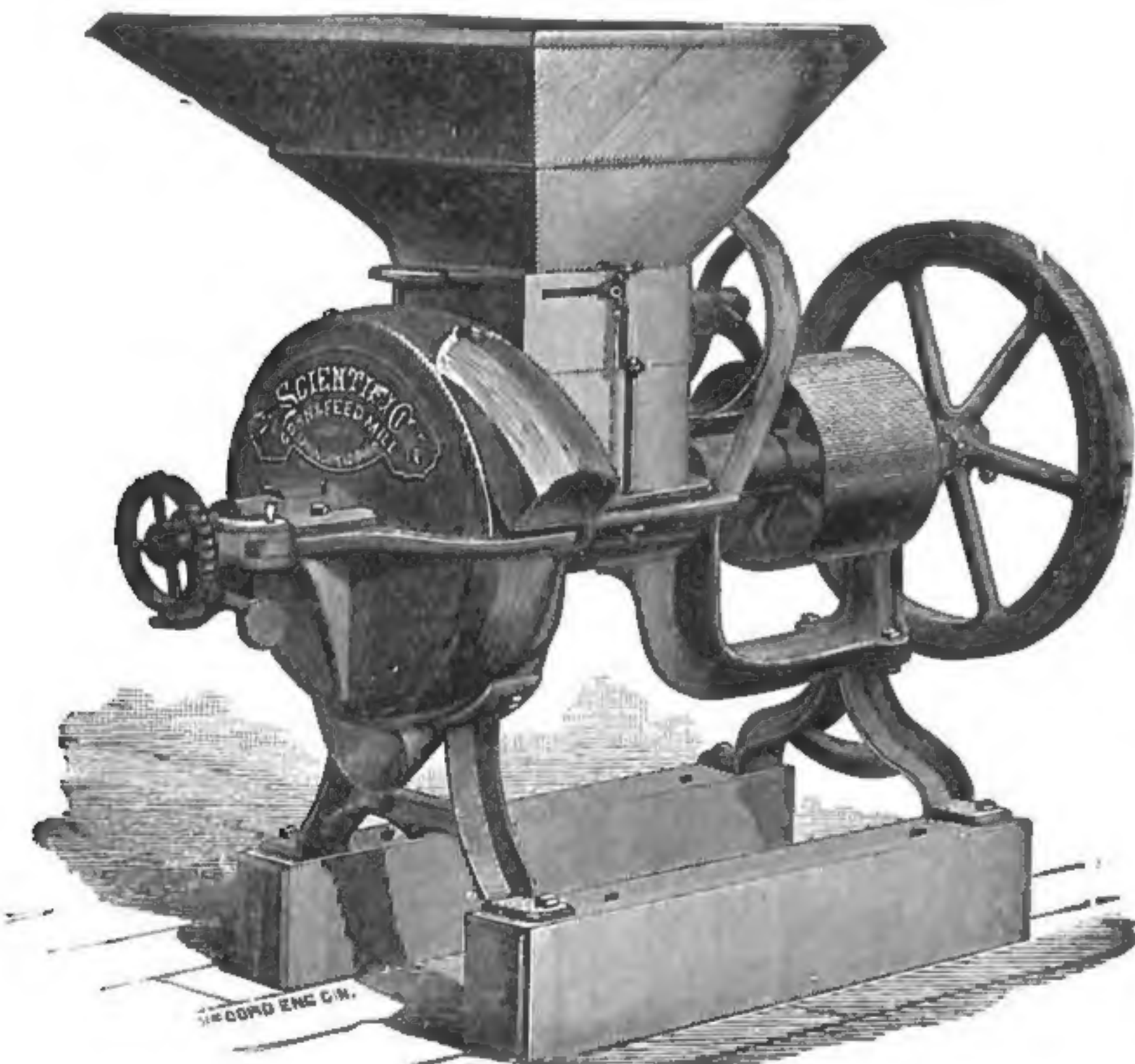
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